WOMEN AND ECONOMIC DEVELOPMENT : A STUDY OF ROLE AND PARTICIPATION OF WOMEN IN THE ECONOMY OF UTTAR PRADESH 1951-81

THESIS
SUBMITTED TO THE
SHRI SHAHU JI MAHARAJ KANPUR UNIVERSITY, KANPUR

FOR THE DEGREE OF
DOCTOR OF PHILOSPHY
IN
ECONOMICS

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UNDER THE SUPERVISION OF
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LUCKNOW

SHRI SHAHU JI MAHARAJ KANPUR UNIVERSITY
KANPUR
1996

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This is to certify that the enclosed thesis entitled "WOMEN AND ECONOMIC DEVELOPMENT : A STUDY OF ROLE AND PARTICIPATION OF WOMEN IN THE ECONOMY OF UTTAR PRADESH - 1951-81" embodies the work of the candidate, MRS. SUSMITA CHANDRA herself and that she worked under my supervision to complete her study for the period required under Ordinance 6. It is further certified that she has put in more than 200 days of attendance at the Giri Institute of Development Studies, Lucknow a recognised centre for Ph.D. of the University, to work under my supervision.

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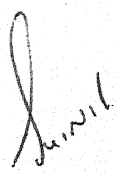
This is to certify that the work embodied in this thesis entitled "Women and Economic Development : A Study of Role and Participation of Women in the Economy of Uttar Pradesh - 1951-81" is an original work done by me. I have prosecuted research towards the submission of this work on an ICSSR Doctoral Fellowship at the Giri Institute of Development Studies, Lucknow.

This work, being submitted to Shri Shahu Ji Maharaj Kanpur University, Kanpur for the consideration of the award of Doctor of Philosophy in Economics has not been submitted either in whole or in a part thereof elsewhere for the consideration of any Degree.



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ACKNOWLEDGEMENTS

I would like to place on record my sincere gratitude to Professor T.S. Papola, former Director, Giri Institute of Development Studies, Lucknow (now Advisor, Planning Commission, Yojana Bhawan, New Delhi), who consented to supervise this study and during the course of research guided me at every crucial step, offering valuable suggestions. Despite his preoccupation with more important academic functions, he was accessible at all times, and available for discussions. His successors Professor B.K. Joshi and Professor G.P. Mishra were equally kind to me. They not only allowed me to make the best possible use of the Giri Institute Library, but helped me in sorting out proper references and study materials. I am grateful to both of them for their active cooperation and guidance.

Professor R.T. Tewari, former Advisor, Economic Planning, Government of Uttar Pradesh, Lucknow, is another object of my veneration. He was too generous to guide me on several occasions when the track either became invisible or too difficult to follow. I do not find suitable words to express my gratitude to him.

I am thankful to Professor M.K. Premi of the Jawaharl l Nehru University, New Delhi, who extended all help in the pursuit of this research work. He is my mother's real

brother and may not take any attempt on my part to become formal in highlighting his role.

I would be failing in my duty if I do not remember Professor Swapna Mukhopadhyaya of the Delhi School of Economics, New Delhi. She not only met me with great affection but provided gladly whatever informations I needed from her source.

Mr. S.K. Ghosh, Programmer at Indian Institute of Management, Lucknow deserves my gratitude in ample measure. He had kindly agreed to compute the statistical data and provided necessary help in using econometric models.

I am also thankful to the staff of Census Directorate, U.P. and the staff of Centre of Women Development Studies (CWDS), New Delhi for their whole hearted cooperation and assistance.

Lastly, I thank a lot to the members of Library staff, Giri Institute of Development Studies, Lucknow, Assembly Library, Lucknow, State Planning Institute, Lucknow, Tagore Library, Lucknow University, Lucknow, Institute of Economic Growth Library, New Delhi and different Libraries at Kanpur.

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CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

A country can achieve a high rate of economic development through the best and the fullest use of its resources. In a developing country like India, burdened with a huge population, an ideal strategy would be to utilize its human resources to the maximum for a rapid economic growth of the nation. This would necessitate optimum participation of women in the various sectors of economic activity. In the world of today and tomorrow any discrimination between the two sexes in the occupational fields has no chance to survive, and sooner the better females are provided with opportunities to share the task of national development along with the males. Obviously, there is no intention to create rivalry between the two wings of the society, nor it would be desirable to role Peter to pay Paul, that is to substitute one for the other. The central idea is to introduce a work culture among all the able-bodied persons irrespective of their sexes.

The new vision of development is defined in terms of satisfaction of basic needs, better and more human conditions of life, freedom from exploitation and minimisation of constraints known as "Human Development".

India has adopted a policy of planned economic development covering all the segments of growth and sections of society. Naturally women will have to be associated with the process. Researchers took a keen interest in studying the various patterns emerging out of the participation of women in economic activities. They found that in some countries there was a growing tendency among the womenfolk to enter the labour market while in many womens' participation declined with the pace of economic development.

In India, however, participation of women in economic activities continues to be low. Although new avenues are emerging day by day for female employment, yet they are confined mostly to the tertiary sector, and not providing adequate opportunities for their employment on a larger scale. The following table depicts the scenario in some measure.

Table 1.1 : Work Participation Rates of Males and Females

	INDIA		U.P.	
Years	Male	Female	Male	Female
1951	54.25	23.60	58.25	23.63
1961	57.12	27.96	58.19	18.14
1971	52.50	11.85	52.24	6.71
1981	51.09	19.20	50.76	8.07
1991	51.05	22.48	49.68	12.32

Source : Census of India

The figures tabulated above give rise to a disorderly visual impression of participation rates over the different Census periods, principally because the concept about workers was revised at every Census enumeration. There is a steep fall in participation rates in 1971 from the earlier level of 1961. The same discrepancy prevails in respect of data for the 1981 and 1991 Census years. To avoid confusion, conditions reflected by the 1951 and 1961 Census Reports have been ignored from this study. On taking the subsequent three decades into consideration a much more clear picture emerges as would be evident from the following table.

Table 1.2 : Percentage of Male and Female Main Workers

	INDIA			U.P.		
Years	Male	Female	Total	Male	Female	Total
1971	52.51	11.88	32.93	52.24	6.71	30.94
1981	51.62	14.07	33.48	50.31	5.40	29.23
1991	51.00	16.03	34.18	49.31	7.45	29.73

Source : Census of India

The above figures indicate a decreasing participation of males and a slightly increasing participation of females at the national level. At the state level trend about male

participation is synchronous but it is quite different in respect of female participation. Seemingly, it denotes a negation of further employment opportunities to both male and female workers with the progress of development.

It is noticed that the female participation was much lower than the male participation both at national and the U.P. state level during all the three Census periods, i.e., 1971, 1981 and 1991. The gap between male-female participation rate was much wider in U.P. than at the national level. An inter-state variation was also observed in the proportion of female participation during all the Census periods. It ranged between 2.79 and 30.05 per cent among the fifteen major states in the year 1991 as compared to 1.18 per cent and 24.15 per cent during 1971. The female participation was highest in Andhra Pradesh and lowest in Punjab during all the Census periods. However, female participation went down further in Uttar Pradesh as the state ranked 13 instead of 12 at the time of 1971 Census.

It may not be out of place to write a few lines about how I came to offer this subject for research. Being a woman myself I should be expected to keep in mind issues involving the welfare of womenfolk. But this alone did not prompt me to undertake this study. Being the daughter of a person who devoted the best part of his life in the service of the nation in the beginning as a freedom fighter and subsequently as a social and political worker, I was indirectly involved with the process of programming for the welfare of our

nation. The importance of women in the society was always discussed and from what I could follow, I guessed that Indian woman and for that matter all the women of the world could act as a catalyst to the economic development in every region. Naturally, the role of women as a builder of the economy of a country or the state became my favourite subject of study and I ventured to undertake a thorough assessment of the women's role in the economic development in the past, present and the future.

Scope of the Study

The state of Uttar Pradesh has been taken as an exemplar for the present study. For a comparative assessment, conditions obtaining at the national level and in the fifteen major states have also been taken into account.

Uttar Pradesh is the biggest state of India in terms of population and ranks fourth area-wise. The state has been divided into five economic regions, which differe from each other in several aspects of productive activity.

As would appear from Table 1.1 participation of women in Uttar Pradesh does not compare well with the national achievement. It is too low. An endeavour has been made to probe into this unfortunate state of things.

The present study covers a period of forty years from 1951 to 1991 to discover the impact of development on female participation rates and the role of women in the economic development of U.P. As the definition of 'worker' changed from Census to Census, figures relating to 1951 and 1961 have not been taken into consideration to avoid confusions during the process of comparison. To expand the field of study for better results data relating to the Census of 1991 has also been utilized. In fact this piece of work was a little delayed on this account.

Sources of Data

This study is based on the secondary data. In India, the two main sources of data on population and the working force are the decennial population Censuses and the National Sample Surveys conducted by the National Sample Survey Organization (NSSO). Of these two sources, the data as provided by NSS was not considered realiable and suitable due to certain defects like inconsistency in the nature of data, non-availability of informations at district level and discrepancy in the time-interval for collection of data.

On the other hand, the Census data was found to be superior to that of NSSO data as it was available conveniently at regular and uniform time-intervals and on a consistent basis both at national and sub-national levels. Moreover, the availability of Census data at district level made the whole study more analytical.

The data pertaining to developmental variables were compiled from the publications and reports of the State Planning Institute Uttar Pradesh, Lucknow and the Centre for Monitoring of the Indian Economy (CMIE), Bombay. Some reports and periodicals of Publication Division, Government of India, New Delhi and Department of Information and Public Relations, Government of U.P., Lucknow were also used for this study.

Objectives

Primarily this study is aimed at discovering the shifts and swings noticeable in the working pattern of women residing in Uttar Pradesh as a result of the state's economic development. This endeavour gave rise to the following specific objectives :

1. Identifying the female participation rates;
2. Comparing female participation of U.P. at the national level and with other principal states;
3. Working out disparities within the state and the economic regions of Uttar Pradesh;
4. Applying the conventional hypothesis in respect of Female Participation Rate and Development in economic terms;

5. Applying alternative premises to assess the Role and Participation of Female Workers into Economic Development.

Methodology

In order to carry out study on the objectives spelt out earlier, various statistical tools and regression models have been used. Measurements like coefficient of variation, ratio analysis and averages are applied to assess the magnitude of variations in female participation rates and growth in female employment. Techniques like Regression Models, Correlation Matrix and Test of significance etc. are used to test the relationship between Economic Development and Female Participation.

Two indices namely Human Development Index (HDI) and Composite Index of Infrastructure Development (CIID) have been devised for comparison of Female Participation with Economic Development. The methods of formulation of these indices are discussed in detail in Chapter III and Appendix III respectively.

Compilation and tabulation of data collected from various sources have been made. Statistical analysis is undertaken with the aid of computer.

Limitations

Some of the limitations which stood in the way are cited below :

1. This study has centred round the role of main workers leaving aside the marginal and other types persons earning livelihood;

2. Even a common definition of worker was not adopted at successive Censuses. Sometimes the modification was too much.

3. The data for the purposes of this research was neither available readily nor it could be treated as authentic without verification from related sources.

Chapter Plan

This thesis is divided into the following six chapters:

1. Introduction
2. Review of Literature
3. Women and Economic Development : In Search of a Theoretical Model
4. Movement Behaviours of Work Participation Rates in India : State Level Experiences
5. Women Participation and Economic Development in U.P. : Inter-Regional Analysis
6. Concluding Observations and Recommendations.

CHAPTER II

REVIEW OF LITERATURE

The studies at the Global level adequately favour the statement that female participation in economic activity is a very complex phenomenon, making it difficult to deduce any uniform statistical pattern of female work participation, which could subsume the country level experiences and help forecast their future behaviour in a right perspective.[1] This is primarily because in case of women, socio-economic, cultural and so many other factors seem to exert a significant influence on labour force participation.[2] Different factors operating under varying social-economic conditions prevailing in different societies - developed and developing, agricultural and non-agricultural, traditional and modern - have affected female participation in economic activities in varied manner. In view of this, it would be useful to get an overview of the major findings of certain selected studies, which might be quite helpful in identifying the broad spectrum of female participation pattern and also the factors contributing to it particularly in the context of Uttar Pradesh.

For purposes of reviewing the literature available on this theme may be classified into two groups, i.e., first, the studies, which are macro in nature, and second, those dealing with micro-dimension. Assigning due consideration to this classification, attempts have, therefore, been made here to review the literature of 'development and female participation rates' in two separate sections.

In Section I, we have, briefly, reviewed the various studies of all-India level, analysing the macro-level trends in work participation rates as well as the cross section studies assessing the impact of various socio-economic, cultural factors on participation of women in economic activities. Whereas micro-level studies shedding light on the problems of women workers in the Indian context are reviewed in Section II. Besides emerging conclusions based on the analysis are recapitulated in Section III.

Section I : Macro-Level Studies

Macro level studies, generally, demonstrate a 'U' shaped curve of female participation rates with economic growth, making a general hypothesis. Very few studies about macro-trends of female work participation are available in regard to pre-1971 Census period. The important among them are found to be the works of Sinha and Durand.

While referring to the data compiled in United States Sinha advanced the general pattern and suggested that female labour force participation rates tend to decline sharply in prosperous states where male earnings are high.[3]

Durand in his study based on world-wide compilation of labour force participation statistics of Census taken during the two decades 1946-66 comes out with the conclusion that 'as economic development progresses, the overall level of participation by females in the labour force rises in some countries, falls in others and oscillates in still others.[4] Further, he puts forward the hypothesis of convergence, according to which 'higher the rate of participation in the labour force at a given stage in a country's development, greater is the likelihood of diminishing rate of the participation rate of women, as economic development progresses, and conversely lower the level of participation rate in labour force the more likely it is to increase.'

The publication of 1971 Census raised clamour among the social scientists including demographers owing to the striking fall in work participation rate during 1971 as compared to that of 1961. Among the works, those of J. Krishnamurthy,[5] J.P. Ambannavar[6] and J.N. Sinha[7] are found to be pioneering. They pointed out that the strict criterion of work adopted in 1971 census was responsible for the low rates. The 1971 Census classification of population into worker and non-worker on the basis of their main activity

(i.e. the activity in which the person engaged himself mostly) relegated a large number of people, who truly speaking did work of an intermittent nature, to the non-worker category. It is, worthwhile, to mention here that the problem of under-enumeration of workers, especially women workers, is conventional, but it was found to be of alarming nature in 1971.

In subsequent analysis, two major issues on the measurement of work namely (a) Concept of work; (b) Invisibility of women's work, were taken up, especially the latter one drawing greater attention of a number of women's groups. The invisibility of women's work meant that a substantial amount of work done by women was 'invisible' because of its being done at home and not generating any cash income.[8] Hence, it was unnoticed by the Census enumerators. This invisibility of women's work was regarded as the chief factor responsible for the lower female participation rates. This called for detailed indepth studies of the work done by women at home on one hand and the ways and means to include such work in 'gainful activities' on the other.

It is, however, disappointing to note that except for some sporadic attempts such as those of Moni Mukherjee[9] in attempting to impute value for women's housework and to incorporate it in GNP calculations, there has been no any other exercise on housework. Mukhopadhyay[10] in her work suggested the utility - disutility concept for measurement of

housework. It appears that the neglect of this area is due to the fact that in India the problems of mass poverty and unemployment and the associated survival struggles of many millions over-shadowed the problem of housework. Thus, both the semantics of housework as well as the debate on wages for housework have been minimal in women's studies.

Several studies analysing the long-term trend of work participation rates of females engaged as agricultural labourers, were carried out with a view to assessing the changing status of women in society over-time. According to 1971 Census, 50 out of 100 women workers were engaged as agricultural labourers, whereas, the corresponding number in 1961 Census was 24 only.[11] The higher figure of women agricultural labourers in 1971, despite the followed up of the strict definition of work compared to 1961, clearly meant that there was a rise in women agricultural labourers during the decade 1961-71. On the other hand, while in 1961, 56 out of 100 women workers were cultivators, their corresponding number fell to 30 in 1971.[12] It is quite possible that the fall in the strength of women cultivators might not have appeared so sensitive and large, had all of them been captured by then 1971 Census. It is, however, further asserted that had there been carried a proper enumeration in 1971, even then the figure would have been below that of 1961. Hence, it appears quite logical that an increase in the strength of female agricultural workers was atleast to some extent an outcome of the shift of some women from the

strength of cultivators to the category of agricultural workers.

Various arguments were put forth to explain the rise in women agricultural labourers. A.K. Srimaly[13] argued that apart from growth in this category, the increase in agricultural enterprises, the slowing down of rural-urban migration as well as displacement of women from household industry and services sector were plausible causes of expansion. On the basis of data gathered in three Indian states, Kumaresh Chakravarty,[14] argued that women, who had originally worked on their small plots, had then more time obviously because of reduction in the size of landholding between 1961 and 1971. This led them to work as agricultural labourers in order to make up the losses in family income resulting from their smaller holdings.

Although various reasons were assigned to an upward trend in work participation rates of women agricultural labourers, but it was universally accepted that this kind of movement resulted in an immediate drop in status from self-producer to wage earner.

The growing concentration of women as wage earners has been characterised by Gail Omvedt as female "proletarianisation." She was of the view that the twin processess of marginalisation or being eleminated from the system altogether and proletarianisation could create severe problems for women.[15]

Besides the temporal studies, a large number of cross section studies were also undertaken with a view to analysing the factors affecting female work participation rates. The studies suggested that participation amongst women is affected by various economic, cultural and social factors like level of literacy, caste, landholding status, age, income levels of households, the level of development of a region as reflected for example in agricultural productivity, technological change, etc.

However, Leela Gulati's pioneering work on inter-state variations in female work participation rates based on 1971 Census data and using simple rank correlation techniques failed to find a satisfactory explanation of the variations in terms of : (i) per capita income; (ii) cropping pattern; (iii) literacy; (iv) male participation rate; and (v) sex ratio.[16] A quite possible reason as identified in this connection was that her hypothesis was not carefully formulated and the statistical technique applied for testing the hypothesis was not quite appropriate.[17]

A similar study, based on the 1971 Census data was undertaken by Dholakia and Dholakia for 20 major Indian states. Using the technique of multiple regression analysis, it was found that per capita income, average size of households and overall literacy rate were the main factors explaining the variations in female participation rates across states.[18] Thus, this study was found to be somewhat superior to the earlier study carried out by Leela Gulati.

Several studies, seeking to explain the relationship between economic development and participation of females in economic activities, have been undertaken from time to time. Gita and Chiranjib Sen's study, based on the NSS 32nd round on employment and unemployment, revealed that an improvement in the households economic position in terms of access to land or income leads to the withdrawal of females from any income generating work outside the home.[19]

Similarly, Kamla Nath's study of the impact of economic development on women's work participation rates at the district and state level revealed that at the district level WPR fall with increase in the development level but this relationship does not exist at the state level.[20] In its support, she pointed out that in large states like U.P. and Maharashtra, the mutually off-setting influences of existing backward and forward regions might have cancelled one another in aggregation of the data for the states.

Section II : Micro-Level Studies

Micro studies, based on secondary data and special surveys, deal with variations in female participation in different sectors of the economy and analyse the factors affecting female participation. These studies can be divided under the following heads.

(i) **Economic Factors**

The pace of economic development is closely associated with female labour force participation rates. Weller observed that participation of females in certain types of gainful employment does increase with economic development, but beyond the point, this increase fails to compensate for a decline of employment in the more traditional industries. Thus, the long run effect of industrialisation, according to Weller, may be to raise the overall rate of female labour force, but the short run effect may be to lower it.[21]

D'Souza analysed that with the general economic development there is an increase in the proportion of high prestige occupations and a subsequent decline in low prestige occupations, the ultimate result is a net decline in the proportion of earners to non-earners.[22]

According to Srivastava, economic development bring about a decline in manual kind of occupations and a simultaneous increase in jobs requiring specialized skill and training.[23] Some researchers like Bina Agarwal[24] and Sarthi Acharya,[25] while analysing the historical trend of female participation rates, blamed technological changes in agriculture as well as in modern sector for this declining trend. In contrast, several others like Narsimha Reddy,[26] Nirmala Banerjee,[27] Jacob Paul[28] and Surinder Jelley[29] have associated the declining trend of female participation with

expansion of modern sector and contraction of traditional agricultural sector.

Boserup observed that in the early stages of industrialisation, in spite of increase in the modern sector there is likelihood for a fall in the female participation rates because women may fail to find employment in the modern sector sufficiently and rapidly to compensate for the relative or absolute decline of those sectors, employing women in greater proportions. The overall decline in FPR would continue, according to Boserup, till the modern sector become so great relative to other sectors that the positive changes in this sector can off-set the decline elsewhere due to the structural changes in the economy.[30]

Mitra, Srimany and Pathak disaggregating the 1961 Census data into 45 major groups of industries and working out the sex-ratio of workers in each group observed the higher participation of women in rural household industry and their poor representation in non-household industry.[31] In identifying some crucial relationship pertaining to female labour force, Parthsarthy and Rao concluded that development process which increases the extent of landlessness within the rural areas transform 'Economic Instability' of women in household with some assets into visible employment/ unemployment.[32] In the study of the West Godavari district of Andhra Pradesh, it was found that the irrigated areas (with high levels of per capita income) had a lower female work participation rate than the unirrigated ones.[33] Devaki

Jain's study of the 'Milkmaids of Kaira in Gujarat similarly showed that FPR is the highest among the poorest class, not owning land or buffaloes and is rather far below the high-income cultivating households.[34]

Sawant and Diwan's study of the two talukas in rural Maharashtra also supported in inverse relationship between economic development and FPR.[35] Here, the relatively more developed villages, characterised by higher average productivity of paddy land, were those experiencing lower female participation rates.

Based on the above studies, it transpires that given the socio-cultural factors, the highest participation is observed among females belonging to the poorest families. This tendency for women to withdraw as a result of an improvement in economic position confirms that majority of the women work not because of their choices but because of the economic compulsion of the family. This finding challenges the assumption about labour supply in conventional economic analysis, where it is pointed out that labour supply increases with an increase in wage rates. It is interesting to note here that when Bardhan,[36] in his study of 4900 rural households of West Bengal, tries to estimate labour supply function for 'usual status' women workers, he finds the labour supply to respond positively to the wage rate, but of course at a declining rate.

Moreover, when Bardhan considers the entire female population of the sample, he finds the wage response to be significantly negative. The labour supply is also found to be negatively associated with number of dependents, number of adult males, village level unemployment rate and standard of living.

Thus, we may conclude that in case of women form poor households, the labour supply is an increasing function of the difference between the subsistence level income of the household and the income of the primary earner or so called 'head' of the household.

The introduction of new technology and machines in India led to several micro studies, explaining the impact of modernisation and technological change on women's status and employment. While pursuing for such studies, it is noticed that employment of both the men and the women are affected as a result of modernisation and technological change. However, female employment is more affected because women doing traditional jobs are replaced by machines and men are generally trained to operate machines. In India, the female dominated processing activities like hand weaving, oil processing, dairying, rice pounding and processing of fish, tobacco and leather are being rapidly mechanised. In such a situation, some of the women take up poorly paid jobs as agricultural labourers while some others remain satisfied with the house work or unpaid home oriented jobs.[37]

The Report of the Committee on the Status of Women in India, found that mechanisation was increasing the immigration of poor women and they were either losing employment or were doing the work under more difficult conditions.

Similarly, Banerjee's work concerning small scale industries showed that women's tasks are generally associated with crude tools and are less energy intensive.[38]

Boserup pointed out that female displacement through industrialization and mechanisation means not only a loss of income, but also a loss of social status.[39] This, then implies, that an employed woman has substantial familial and social status and can make claims for quality with men, unlike a woman who merely works in the home. The authority and independence, which a working woman may gain, is heavily circumscribed by the dictates of certain social and economic constraints.

The above studies provide adequate evidence to suggest that the participation of females in economic activities is determined by certain social, economic and demographic factors. These consists of regional development level, literacy rate, number of dependents in a family, the male participation rate, wage rates, landholding status, etc.

The studies carried out in the context of India also suggest that economic consideration is mainly responsible for

participation of Indian women in economic activities. Pranab Bardhan, in his study of 4,900 agricultural households in rural West Bengal, found that the average earnings of female agricultural labourers is lower than that of male agricultural labourers but this difference is narrowed down in relatively better developed districts.[40]

Kalpana Bardhan in her study highlighted that not only differentials in operations fetch higher wages to male workers but also in similar works like transplanting female workers are paid lower than their counterpart male workers.[41]

Similarly, Parthsarthy - Rao study of four regions in the rural sector of Vishakhapatnam district revealed that female dominated operations like transplanting engaged the services of male laboruers, but the wage rates for these male labourers were generally higher than that of females. This also holds good even in other operations like harvesting and threshing in agriculture and road work, earth work or construction in non-agriculture.[42]

However, contrary to the above evidence was the case study of Gujarat by Indira A. Hirway, which showed that though the predominantly male operations invariably fetched higher rewards than the predominantly female operations, yet the wage rates in the common operations were almost identical for males and females.[43] Thus, it appears that operation-wise wage differentials are not universally acceptable.

So far as informal sector is concerned, the employed women workers in small scale industries in Madhya Pradesh, received much less pay as compared to the males.[44] Gambhir's study showed that the participation of women to total workers varied from nearly 38 per cent in Bidi making to about 60 per cent in shellac manufacture. But despite this large concentration of women workers, the average earnings of unskilled women workers were around 70 per cent of that received by male workers.[45] A similar was the case with women construction workers in Delhi and Bihar; they were usually assigned subsidiary operations and hence were given lower wages as compared to their male counterparts.[46]

In two of the industries employing a large number of women in unorganised sector in Kerala (i.e. cashew processing and coir industry) a similar story emerged. Besides existence of wage differentials, men were employed on daily basis, while women were paid according to piece rates.[47] This was confirmed by the fact that the families surveyed had a high percentage of unemployed men, which meant that the women's jobs available in the industry at the going rates of pay were unacceptable to them.[48]

The working women seemed to have fared relatively better in the organised sector - especially the public sector, where employment of women went up.[49] In spite, one finds that women were shunted into low paid and crowded professions, as revealed by the study on Degree Holders and Technical

Personnel based on 1971 Census data by Bina Agarwal.[50] Similarly, the study of 400 working women of Rajasthan by Talwar, showed that the professional and skilled workers in her sample had to be contented with lower remuneration for equal work.[51]

Based on the aforesaid discussion, one reaches the conclusion that the wage earnings profile of the women workers is flat or at least much less steep than that of male workers, resulting in growing frustration among the female workers. An important reason being that women are generally concentrated in the unorganised sector, which does not offer time-scales of pay with rising emoluments during the period of their service and their employment in such occupations in the organised sector rarely has good prospects for promotion.[52]

Thus, the widespread phenomenon of male-female wage differentials, as brought out by the above studies, could be to some extent responsible for the differences in the labour supply behaviour of males and females. In view of the low wages offered to women, they may be reluctant to offer their services in the labour market. The pressing economic need, which greatly affects the participation decision of women, may force women to take up the low paid jobs.

On the employers side, such discriminatory practices are justified by the fact that women as workers are 'inferior' to the male workers. And in course of time such discriminatory

practices get firmly entrenched in the system, which are advantageous to the employers.

(ii) **Educational Level**

The relation between work participation rate and educational level is rather mixed. For example, in the industrialized countries female with the level of their education and that more highly educated women suffer less unemployment. On the other hand, in agro-based economies and especially in India correlation is rather contrast.[53] Reddy found from a cross-sectional analysis of 1971 Census data that participation rates were higher for illiterate females in both the rural and urban areas than for those with middle school and ordinary graduated females, although a steep rise is seen in those females with educational level of matric and above.[54] The study by Nath also revealed that the participation of literate women was lower than that of illiterate.[55] While some researchers found that although illiterate women form part of work force in great proportion than the literate ones, but within the literate group highly educated women take part in economic activities in greater proportion.[56]

(iii) **Age**

Certain demographic factors, which influence female participation rate, have been studied by some researchers.

According to Standing, in industrialized countries the most common feature has been a sharp peak in activity rates for women in their early twenties.[57] Durand found that age distribution of female participation vary considerably. In some countries it reaches a peak in the 50-54 years, in some 20-24 years, in some 15-19 years, in some others there are two peaks, one before the on-set of child bearing and one some years after the period of child bearing.[58]

In India, Patel found that female participation rate curve for working class women does not have any peak or trough and the data showed that 94 per cent of the blue-collar working women are between the age of 20 and 60 years.[59] Denti observed for India that urban as also rural activity curves for females are bell shaped '∩', rural curve is, however, skewed at higher age-group.[60] Venkatadasappa showed that the degree of participation increases with age for all age-group of women, but residence or marital status has, however, of great influence.[61]

(iv) **Studies on Discrimination**

Discrimination is an area of big interest of researchers. These studies observed that women are mainly engaged in low paid, low skilled and low productivity jobs in unorganised sectors.[62] Papola found that women have less access to higher positions, and the employer's own attitude is a major factor contributing to women's low share of

employment, which tend to place women in a secondary position and under subjugation of men.[63]

(v) Marital Status

The institution of marriage adversely affects female participation in economic activities. It is more severe in urban areas than in rural areas. The study of Smith shows that the traditional sector provides employment opportunities to women while caring for children, development accompanied by decline of this sector, leads to a contraction in women's employment.[64] Some researchers found that divorced and separated women shows the greatest attachment to the labour force in all age-groups.[65]

(vi) Other Factors

Family income is also one of the important variables that influence female participation rates. These studies mainly observed that female participation rates were high at low income levels, fell down with rising income levels and once again going up beyond a certain high income level.[66] On the other hand, some researchers noticed that income was no sufficient condition to impel women to join the labour force.[67]

Size of family is another factor affecting female labour force participation. These studies observe that number of

children do not restrict females to enter the labour force but the age of children, if too young, restrict them due to child rearing responsibilities.[68] Another factor which may influence the supply of female labour is caste and religion. Numerous studies reveal that in India, the highest rate of female labour force participation is among the lowest caste category group.[69]

Studies on rural-urban classification observe that female participation rates are higher in rural areas than those in urban areas and this disparity in much larger in developing countries than in developed countries.[70]

Dandekar looks at Census data and working out male-female rates in different occupational categories ends with a pessimistic note, "we should begin by recognising the regrettable but hard fact that men are unlikely in the near future to share the burden of household duties and house-keeping.[71]

While there is a renewed emphasis on women and development, there is still a need for local labour market which influence the participation of women in economic activities. As Visaria observes, "Given the growing interest in rising the status of women, a well co-ordinated set of micro-studies on the economic activities might prove more rewarding.[72]

Section III : Emerging Conclusions

The foregoing review of the literature on the subject concerning development and female participation rates enables us to derive certain significant conclusions, which are recapitulated through the following paragraphs:

First, macro-level studies, generally, conclude that as development proceeds, the female participation rate goes on declining till the former attains its saturation level and thereafter further growth and stability results in an increasing trend of female participation rate during the period beyond the saturation.

Second, micro-level studies on the subject, on the other hand, point out that level of development, educational status, castes and social consciousness of an area have direct bearings on the female participation rates. There is a direct relationship between the level of backwardness and the female participation rates. Moreover, there appears to be an inverse relationship between the literacy rate and female participation rate particularly in rural areas. Besides, lower castes dominated areas have, generally, demonstrated higher female participation rate and reversal of this generalisation is noticed to be operative in the reverse circumstances. In addition, the areas suffering from higher incidence of poverty along with illiteracy have demonstrated higher female participation rate and vice-versa.

Third, both the macro and micro level studies cited above are generally based on the 'development led female participation rate hypothesis'. In other words, none of the studies cited above have given thought to the otherwise 'female participation rate led development'. Obviously, this becomes a gap in research and research advancement. In view of this, it is felt imperative to carry out the present study in the context of Uttar Pradesh, following the latter hypothesis which is undenyingly away from the convention but also appears to be logically convincing at par. Therefore, the present dissertation is devoted to study and analyse the role of women in economy of Uttar Pradesh during the period under reference. But prior to this, efforts have been made through the following chapters to assess and examine the relevance of our selected hypothesis for carrying out the proposed work.

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CHAPTER III

WOMEN AND ECONOMIC DEVELOPMENT : IN SEARCH OF A THEORETICAL MODEL

Introduction

For meaningful and comfortable analysis of inter-relationship between women and development, it is essential to follow some definite approach which could entail conceptualization of the terms used, reference period of the study, data choice and its sources including methodology followed. While conceptualizing the terms used in the present context, it is deemed worthwhile to make proper choice of the definitions of the concept of workers in general and the female workers in particular on one hand and the broad based definitions of development chosen for purposes of analysis in the present context.

Giving due cognizance to the above, the present chapter is, therefore, divided into four sections of : (i) An approach to Analysis; (ii) the development and participation rates - a specific view; (iii) development and participation rates - a generalized view; and (iv) emerging conclusion. A section-wise discussion would be as follows :

(i) **An Approach to Analysis**

As emphasized earlier, in order to measure the contribution of female participation rate to development over-time and analyse the inter-relationship between the two, we shall now proceed with selection of operational definition of the two major concepts, i.e., workers/female workers and development.

While digging out the literature connected with the subject, we notice that Census and NSS are the two major sources of data regarding population in general and workers in particular. But our search for operational definition of workers will be confining to the Census source and NSS data will be disregarded and excluded from the purview of the present study on two major considerations. First, the coverage of Census data is much wider than the NSS data and former is available for continuous decadal points of time whereas such continuity is not maintained in case of the later. Second, although collection, compilation and processing of data collected through Census process is more time consuming, more expensive including involvement of Volumnous work-load but is unanimously deemed to be much more reliable compared to the data collected from other sources. Since the Census involves complete enumeration of the population and the NSS data is based on the samples drawn from the universe and, therefore, the estimates arrived at

may be far from the accuracy or in the neighbourhood of it. Therefore, it is customary to contemplate that Census data are much more reliable than its counterpart NSS data.

Traditionally, the population Census in India is carried out on a regular decadal interval to collect data/information on the economic activities of the people. The Census data is a regular source of an inventory human resources of the country. Listing their numbers, characteristics, occupations and distribution of workers among the various branches of the economy. It is heartening that measurement of economic activity has been attempted in every Census but this point we also noticed that often the concepts followed for collection of data/information have undergone changes from time to time. Thus, the concept of workers is no exception to it.

Concept of Workers in Earliest Censuses

Summingly we noticed that the data collected on various economic activities of the people in the 1951 Census was based on 'income' approach whereas attempt made in this direction in the 1961 Census was based on 'work' approach operational as in terms of time or the labour force as per recommendations of the ILO. Following the work approach in 1961 Census the classification of population was done into two categories - workers and non-workers. Further, defining the concept of workers was attempted in a liberalized manner; a person was treated as worker if he or she devoted more than

one hour a day for regular work for a larger part of the working season or if she/she was employed during any of the fifteen days preceeding the visiting day of the enumeration to the household.[1]

In the 1971 Census the population was divided into two broad streams of main activity as 'workers' and 'non-workers'. To elaborate it, if a person had participated in any economic activity on any one day during the reference period (one week prior to the date of enumeration) was treated as main worker and the rest were treated as non-workers. Even if they were engaged in some economic activity partly or wholly during the year excluding the reference period. Thus the glaring difference arising out of the changes in definition of the workers brings out the fact that 1971 Census registered a sharp decline in the work participation rate during 1971 Census compared to that of 1961 Census. On the other hand, while formulating the economic questions for 1981 Census, a trichotomy of persons into mutually exclusive groups of main workers, marginal workers and non-workers was introduced, besides following a uniform reference period of one year preceding the date of enumeration. Main workers were those who had worked in some economic activities for the major part of the year that is a period of six months (183 days) or more. Moreover the marginal workers were defined as those who had worked for sometime during the reference year but not for the major part of it. Besides the non-workers were those who had not worked

at all during the reference year. In other words the strength of non-workers could be arrived at by substracting the total strength of main and marginal workers from the total population.[2]

Finally, for 1991 Census based on the discussions in the data user conference it was decided unanimously to follow the concepts and definition used in the 1981 Census including the reference period of one year for both regular and seasonal activities.

Thus, it is discernible from the aforesaid discussions regarding the definitional changes in the concept of workers that the data regarding the strength of workers available for various Census carried out in the past are not comparable. But the minute observation of the data concerning main workers suggests that the flow of data for main workers since 1971 Census onwards is regular in nature and full comparability is maintained throughout. Obviously because of this added advantage it is, therefore, deemed worthwhile to accept the definition of main workers for purposes of analysis in the present dissertation.

Development Redefined

The concept of development carries a historical connotation. For example in 1950s and 1960s the development

was seen as an economic phenomenon in which rapid gains in GNP growth - whether overall or per capita - as preconceived would either trickle down to the society in the shape of employment and other economic opportunities or create necessary condition for equitable distribution of socio-economic benefits of growth. One of the limiting factor of this concept of development was that poverty, unemployment and inequality were assigned secondary importance.

The efforts and experiences of 1950s and 1960s resulted in an unrosy scene; although some of the LDCs succeeded in achieving the growth targets but there was no satisfactory improvement in levels of livings of the people, signalling towards the basic draw back in the aforesaid narrow definition of development. Alternatively the clamour among the social scientists was raised for dethronement of GNP and promotion of direct attacks on three cruel bells of poverty, unemployment and inequality. In other words, the development was redefined in terms of the reduction in incidence of poverty, unemployment and inequality which were conceived as a chronic disease of the less developed countries in general and India in particular. As posed by Prof. Dudley Seers, "if all the three of this have declined from high levels than beyond doubt this was to be known as a period of development for the country concerned. In juxta position if all the three have been growing vast it would be strange to call the result development even if per capita income doubled.[3]

Corolary to the above, it was subsequently argued that development must be conceived of as a multi-dimensional process involving changes in structures, attitudes and institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty. In other words, it was thought that development must represent the entire gamut of changes by which the entire social system biased to the diverse basic needs and aspiration of individuals and society within the system moves away from unsatisfactory conditions of life to satisfactory conditions of life regarded as materially and spiritually better.

Another way of defining development based on previous experiences was to conceive it as the sustained invasions of entire society and social system towards a better human life. And in this context it was emphasized that at least three core values of life sustenance, self-esteem and freedom from servitude should serve as a conceptual basis and practical guideline for understanding the inner meaning of development.[4] As a matter of fact, these core values represent common goals sought by all individuals and society. While highlighting the overwhelming importance of these three values it was further argued that if people feel less self-esteemed and their freedom to choose is constrained, than even if the provision of life sustaining goods and improvements in levels of living are occuring, it would be misleading to call the result development.

Of late, a new dimension to development was added and emphasis was laid on real or human development rather than the concept of mere development. For this new conceptualization, credit goes to UNDP which in the very beginning of 1990s redefined the real or human development as a process of the people choices or options. The most critical of these wide ranging choices are to live a long and healthy life, to be educated and to have excess to resources needed for a descent standard of living. Additional choices include political freedom guaranteed human rights and personal self-respect. Further with a view to measuring the level of human development, human development index was constructed with the help of the three selected indicators of real per capita income, literacy percentage and the life expectancy.[6] This human development index was made a proxy for the level of human development. The process of its measurement involves basically the three steps as follows.

The first step is to define a measure of deprivation that a country suffers in each of the three basic variables - life expectance (X_1), literacy (X_2) and (the log of) real GDP per capita (X_3). A maximum and a minimum value is determined for each of the three variables given the natural values. The deprivation measure then places a country in the range of zero to one as defined by the difference between the maximum and the minimum. Thus Iij is the deprivation indicator for the Jth country with respect to the ith variable and it is defined as :

$$Iij = \frac{(\max_j Xij - Xij)}{(\max_j Xij - \min_j Xij)}$$

The second step is to define an average deprivation indicator (Ij). This is done by taking a simple average of the three indicators :

$$Ij = \sum_{i=1}^{3} Iij$$

The third step is to measure the human development index (HDI) as one minus the average deprivation index :

$$(HDI)_j = (1 - I_j)$$

Taking into account the foregoing discussions on the concept of development, it is, therefore, finally decided that while studying and analysing the inter-relationship between women and development through subsequent chapters in the dissertation, the concept of human development based on human development index will be followed for operationalising the detailed and indepth analysis quantitatively. Needless to mention that choosen approach would undoubtedly help ensure objectivity in analysis to a greater extent in the present context.

Unit of Analysis

Although major thrust of the study is confining to the experiences of the study of U.P. it is also deemed to be relevant to compare the U.P. experiences with those experiences of the other major states constituting India. So far as this chapter is concerned, state could be taken as a unit of analysis in the present context. Therefore, the present analysis would involve use of the relevant data of the 15 major states.

Reference Period

Undoubtedly the study would have been more interesting and significant if the required data regarding the strength of workers separately for males and females and the selected indicators of development mere found to be comparable for all the Censuses starting from 1951. Two basic limitations of the availability of comparable data are noticed; First, the workers definition underwent changes from 1951 Census to 1961 Census and from 1961 to 1971 Census. Second, comparable data of selected indicators of development are also not readily available at constant prices for the period starting from 1951. Since the definition of workers remained the same during the period 1971 onwards and the comparable data regarding the selected indicators of development are also readily available for this period, it is, therefore, decided

to confine the present analysis to the period from 1971 to 1991.

Sources of Data

Censuses and NSS are two chief sources of the population data. But again because of the non-availability of NSS data for the selected decadal points of time, i.e. 1971, 1981 and 1991 Censuses, is made the main source of population data required for the analysis in this chapter. The other sources of data particularly required in regard to selected indicators of development will include CMIE reports, Census reports and Inter-State Statistical reports.

Methodology

In order to carry out the analysis of the inter-relationship between the FP Rate and the selected indicators of development, we have made choice of variables as follows:

1. Female Participation Rate
2. Male Participation Rate
3. HDI
4. Urbanisation
5. CIID

Further, to assess and analyse the influence of each of the selected indipendent variables on a selected dependent

variable, an application of alternative regression models required for the purposes of analysis is deemed to be imperative.

The regression equations as developed and applied for carrying out alternative exercises to arrive at statistically sound and appropriate framework have been incorporated at appropriate places in subsequent analysis of this chapter.

Regression Model I (Alternative Model I)

To begin with efforts are made to assess and analyse the relationship between the level of human development and the total work participation rate, besides finding out the relative importance of one of the two variables under consideration. For this purpose in all fifteen major states of India are considered as units of observations of analysis and the following regression model is applied to the data of the selected variables at the selected three points of time, i.e., 1971, 1981 and 1991.

$Y = (f)\ a\ .\ x^X$ (1) for Y on X

(Y = (f) a . x^X – Equation-1 for Y on X and

$X = (f)\ a\ .\ y^B$ – Equation-2 for X on Y

One of the discouraging finding based on the exercise is that the coefficient of correlation between the two selected variables was found to be negative in 1971 and 1981 and marginally positive but insignificant during 1991. When Y is taken on X we get the result as capitulated below the tabular form.

Table 3.1 : Results Based on the Application of Regression Model I (When Y is taken on X)

Values	Periods		
	1971	1981	1991
Constant Term	0.5353	0.6139	0.2266
Regression Coefficient	-0.004281	-0.006610	0.003612
T-Value	-0.336820	-0.54242	0.3069
R^2	0.008038	0.020583	0.006682
F-Value	0.105344	0.273207	0.087451

Source : Based on the data given in Appendix I.

One could easily notice three important points which transpire from the minute observation of the above table. First, values of R^2 in all the three cases are noticed to be extremely poor, speaking of the bare truth that fit is not good, second, values of Regression Coefficients of Human Development (Y) in respect of TWPR (X) are found to be

negative in 1971 and 1981 and marginally positive during 1991. Third, the corresponding T-Values in the first two cases are negative and marginally positive in 1991. The T-Values being extremely of the lower order suggest that none of the value of the regression coefficients under question are significant.

While proceeding further in search of an appropriate model efforts have also been made to analyse the results based on the equation-2 when X is taken on Y. The results based on equation-2 are given in the following table.

Table 3.2 : Results Based on the Application of Regression Model I (When X is taken on Y)

Values	Periods		
	1971	1981	1991
Constant Term	33.428	34.352	33.274
Regression Coefficient	-1.878	-3.114	-1.850
T-Value	-0.3368	-0.5424	0.3069
R^2	0.0080	0.0206	0.0067
F-Value	0.1053	0.2732	0.0875

Source : Based on the data given in Appendix I.

The figures cited above speak themselves. The values of R^2 are extremely low, indicating clearly that the fit is not

good. The Regression Coefficient of X in respect of Y are again found to be negative in 1971 and 1981 and of course considerably high value of the coefficient during 1991. However, the T-Values corresponding to these coefficients are extremely low pointing out to the fact that values of the regression coefficients are also in the present case not significant at all.

The same regression exercise was also carried out taken into account all the data of the selected two variable (i.e. X and Y) available for fifteen major states at the selected three points of time, i.e., 1971, 1981 and 1991. The results of this exercise are given in the following table.

Table 3.3 : Results Based on Regression Model One and Two applied to all the data of Fifteen States combined together for three selected points of time.

Values	Y on X	X on Y
Constant Term	0.4739	33.7540
Regression Coefficient	-0.002829	-1.3469
T-Value	-0.410259	-0.410245
R^2	0.0038	0.0038
F-Value	0.1645	0.1645

Source : Based on the data given in Appendix I.

It will be evident from the above table that the R^2 in this aggregate exercise are also extremely low which demonstrate non-suitability of the model. In this exercise too, the values of regression coefficients are found to be negative and the T-Values corresponding to them are indicating for the fact that the regression coefficient was not significant at all. In spite, it appears that X (TWPR) is less severe to Y as compared to that of Y to X. Based on this one may dare to deduce farfetched implication that X is remotedly a cause of Y which is as a matter of fact doubtful as witnessed by the T-Value corresponding to it.

Alternative Regression Model II

Owing to non-suitability of the aforesaid regression model it was deemed imperative to carry out application of an alternative model to search out suitable model to be followed for analysis in our dissertation. In that context no doubt we followed the method of regression analysis for application of an alternative model but the framework adopted here in the present context was in an expanded form. The original model which consisted of only two variables was replaced by the alternative model involving use of four variables namely, (1)

HDI (Y); (ii) Female Participation Rate (X_1); (iii) Composite Index of Infrastructure Development (X_2); and (iv) Urbanisation (X_3). Besides this in application of this model too, state is taken as a unit of analysis and the time period considered remains the same.

The regression equation constituted with the help of the selected variables for purposes of present analysis are as follows :

$$X_1 = (f)\ a \cdot Y^{X}1 \cdot X_2{}^{X}2 \cdot X_3{}^{X}3 \quad \ldots\ (1)$$

$$Y = (f)\ a \cdot X^{X}1 \cdot X_2{}^{X}2 \cdot X_3{}^{X}3 \quad \ldots\ (2)$$

The findings based on the application of this alternative model are discussed through subsequent paragraphs.

Correlation Matrix

First of all we tried to assess and analyse the inter-relationship among the selected variables through correlation matrix which is presented below separately for each of the selected points of time and also for all the selected points of time jointly for purposes of aggregate analysis.

Table 3.4 : Correlation Matrix

Variables	Y (HDI)	X_2 (CIID)	X_3 (UD)	X_1 (FPR)
		1971		
HDI (Y)	1.00000			
CIID (X_2)	0.38126	1.00000		
UD (X_3)	0.56986	0.13824	1.00000	
FPR (X_1)	0.10001	-0.07369	0.04656	1.00000
		1981		
HDI (Y)	1.00000			
CIID (X_2)	0.79224	1.00000		
UD (X_3)	0.39805	0.32295	1.00000	
FPR (X_1)	-0.01707	-0.11057	0.20603	1.00000
		1991		
HDI (Y)	1.00000			
CIID (X_2)	0.64774	1.00000		
UD (X_3)	0.55454	0.44938	1.00000	
FPR (X_1)	0.00628	-0.15901	0.28926	1.00000
		Aggregate		
HDI (Y)	1.00000			
CIID (X_2)	0.47733	1.00000		
UD (X_3)	0.45358	0.40030	1.00000	
FPR (X_1)	0.00497	-0.00426	0.23793	1.00000

Source : Based on the data given in Appendix II.

A minute observation of the above correlation matrix helps us to draw at least two meaningful conclusions. First, there appears to be direct and positive relationship of Human Development Index (Y) with Composite Index of Infrastructure Development (X_2) and Urbanisation (X_3). Second, it is also heartening to note that there happens to be a positive relationship between FPR (X_1) and Urbanisation (X_3) althrough the period under review. Besies the relationship between the FPR (X_1) and HDI (Y) although by and large positive but not as strong as we observed in cases of other variables.

Regression Analysis with FPR (X_1) as Dependent Variable and the Rest Selected Ones as Independent Variables

The result based on the application of this Regression Model are shown in the following table.

Table 3.5 : Results of the Regression Analysis Based on Equation No.1

Values	Vari-ables	Periods			
		1971	1981	1991	Aggregate
Constant Term		10.9843	10.4892	10.8302	9.3674
Regression Coefficient	Y	6.0081	3.2545	-0.7893	-3.6927
	X_2	-0.0203	-0.0496	-0.0535	-0.0121
	X_3	-0.0285	0.2524	0.4529	0.2990
T-Value	Y	0.4516	0.1964	-0.0537	-0.5509
	X_2	-0.4314	-0.5859	-1.0214	-0.4825
	X_3	-0.0892	0.8460	1.4525*	1.8454**
R^2		0.025279	0.080423	0.188519	0.075080
F-Value		0.095093	0.320677	0.851823	1.109389

Source : Based on the data given in Appendix II.

Note : * 5 per cent level of significance.
** 10 per cent level of significance.

As transpires from the above table there are three noteworthy points of not veru encouraging nature : First like the previous model, this model too does not appear to be sound obviously because of the positive but meagre values of R^2 emerging from its application at each of the selected points of time. This results in disappointing feature with a

conclusive remark clearly spelling out the fact that the fit is not good. Secondly, looking to the regression coefficients it is further observed that HDI (Y) significantly contributed to FPR (X_1) in first two selected points of time but surprisingly its role deteriorated and the contribution to FPR (X_1) reversed to negative during 1991 as witnessed by the value of coefficient (i.e. -0.7893). Besides, the contribution of CIID (X_2) to FPR (X_1) is found to be insignificant althrough the reference period. It is, however, encouraging to record that the contribution of urbanisation (X_3) to FPR (X_1) was found to be though negative and insignificant in 1971 which showed its recourse in positive direction during the remaining points of time. The coefficient of FPR (X_1) in respect of Urbanisation (X_3) is recorded to be 0.4529 with the corresponding T-Values of 1.4525 which is significant at 10 per cent level. Thirdly, in the remaining cases of coefficients the corresponding T-Values are not found to be significant at all. Thus, summingly we derive a conclusion that this model too cannot be deemed to be appropriate in the context of present analysis.

Regression Analysis with HDI (Y) as Dependent Variable and the Rest Selected Ones as Independent Variables

Contrary to the above, attempts were also made to assess and analyse the contributions of FPR (X_1), CII (X_2) and

Urbanisation (X_3) to HDI (Y) through application of the same model using equation No.2. The regression results thus found are shown in the following table.

Table 3.6 : Results of the Regression Analysis Based on Equation No.2

Values	Vari-ables	Periods			
		1971	1981	1991	Aggregate
Constant Term		0.0288	-0.0151	-0.0798	0.1088
Regression Coefficient	X_1	0.002781	0.000984	-0.000304	-0.001942
	X_2	0.001351	0.003939	0.001893	0.001317
	X_3	0.013425	0.004170	0.008341	0.008404
T-Value	Y	0.4516	0.1964	-0.0537	-0.5509
	X_2	1.4305++	4.0758@	2.0527#	2.4495*
	X_3	2.3612*	0.8014	1.3492++	2.3088*
R^2		0.42774	0.651345	0.50666	0.314846
F-Value		2.74068	6.84996	3.765675	6.280202

Source : Based on the data given in Appendix II.

Note : @ 0.5 per cent level of significance
* 2.5 per cent level of significance
# 5 per cent level of significance.
++ 10 per cent level of significance.

It would be evident from the above table that the values of R^2 noticed through application of the regression model demonstrate a rosy picture; its value which was 0.4277 in 1977 increased to 0.6513 in 1981 and 0.5067 during 1991. This provides us definite clues for deducing a conclusion that the fit is good and the application of this kind of model involving use of HDI (Y) as dependent variable and the FPR (X_1), CIID (X_2) and Urbanization (X_3) as independent variables, theoretically sound and empirically valid. Further a close examination of the regression coefficients and their corresponding T-Values suggests that infrastructural development and urbanisation have made significant contributions to human development during whole of the reference period. From the point of view of contribution it is worthwhile to remark that the FPR (X_1) made positive contribution in 1971 and in 1981 which of course got reversed to negative in 1991. But looking to the T-Values concerning the coefficient value of FPR (X_1) clearly spell out that the contribution of this variable to human development was insignificant throughout during the reference period.

As evident from the above, the contribution of urbanisation to HDI during the reference period was the highest followed by CIID and FPR. The contribution of FPR to HDI was positive in 1971 and 1981 and negative in 1991 which may not found significant at any of the selected points of time. This shows that FPR could not make the desired

contribution to HDI probably because of the non-prioritisation of the policy for women employment during the reference period. Secondly, since these results are based on inter-state analysis there appears to be a likelihood of noticing differing contribution of FPR to HDI when the same model is applied at the regional level in Uttar Pradesh.

NOTES AND REFERENCES

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CHAPTER IV

MOVEMENT BEHAVIOUR OF WORK PARTICIPATION RATES IN INDIA: STATE LEVEL EXPERIENCES

I. Introduction

Maximisation of economic growth had been one of the cherished goal of India's Five Year Plans during the fifties and the sixties. However, while evaluating the nature and pattern of growth emerging out of the plan efforts, it was thought by the researchers, policy makers and the government that the progress in economic growth in these two decades was lop-sided and flawed, besides giving berth to growing regional imbalances, poverty and unemployment. Therefore, since dawn of seventies a new dimension of 'equity' or social 'justice' was added to our cherished goal of 'maximisation of growth' in India's Fifth Five Year Plan. Policies and prorammes were tuned accordingly towards 'bottom up' approach rather than the 'top down' approach followed in earlier plans. Since then, all-round efforts have been made through various Five Year Plans to achieve the cherished goal of

growth and equity with major focus on reducing the incidence of poverty, unemployment and inequality.

As a result of plan efforts, we notice that there have been tremendous improvements in growth and structure of the economy as witnessed by the rising trend of the values of various socio-economic indicators. Besides demonstrating a rising trend of income/output growth, there was also a considerable change in composition of the national and state level incomes; a significant shift in contribution to Gross Domestic Product (GDP) was noticed from the primary to secondary and tertiary sectors. In other words, the loss of primary sector was compensated by gains of the latter two over the period of planned development programme particularly since the beginning of the eighties onwards. There was also an accelerated socio-economic structural transformation of the Indian economy. No doubt, income growth accompanied by the employment growth is also observed over the period. But the latter has, always, been lagging behind the former, as a sequel, the employment growth failed to keep race with the income growth and resulted in lee-way to the growing army of unemployeds in the country. In spite, the experiences of previous two decades suggest that the total employment showed a persistently rising trend in absolute terms, as would be evident from the following table :

Table 4.1 : Trends in Expansion of Employment During 1971 and 1991 (in millions)

Year	Organised	Unorganised	Total	Share of unorganised sector employment in terms of percentage
1971	20.20	206.70	226.90	91.10
1981	22.90	214.00	236.90	90.33
1991	26.70	259.38	286.08	90.66

Sources : 1. Draft Five Year Plan - 1978-83
2. Economic Surveys - 1994-95
3. Survekshana, Vol.III, No.1, July 1979

It would be clear from the above table, that the total employment at the national level increased from 226.90 million in 1971 to 236.90 million in 1981 and 286.08 million during 1991. This is indicative of the fact that there might have been a significant change in the total work participation rate along with its composition, i.e. the male participation rate (MPR) and the female participation rate (FPR) both at the national and state levels in India during the period - 1971-1991. It is against this backdrop that the present chapter aims at analysing the movement behaviour of work participation rates (WPR) with major focus on female participation rate (FPR) in India during the reference period, taking regional dimension into consideration. To accomplish this task, it is decided to assess and analyse the

changes in TWPR, MPR and FPR both at the national and the state levels following the methods of both temporal as well as cross section analysis.

Having described the scope, the need and the importance in brief, it is proposed to organise the whole chapter into five sections. The first section deals with methodology followed, and the second section attempts to analyse the changes in proportions of female workers to the total workers, rural female workers to total rural workers and urban female workers to total urban workers both at the national and the state levels during the reference period. Further the patterns of employment growth of the total workers alongwith separate analysis of those of female and male workers are discussed in the third section, whereas the fourth section is devoted to analysing the changes in total female and male participation rates during the reference period both at the national and sub-national levels. Finally, the fifth section tries to highlight the inter-category movements of states by proportions of employment growth and participation rates of female workers.

II. Methodology

An operational area of the study would be confining to the fifteen major states of India for which comparable data of main workers with break up of males and females is

available for 1971, 1981 and 1991. Since data regarding the marginal workers were not available in 1971 Census, it was, therefore, deemed worthwhile to exclude the marginal workers from the purview of the present analysis. Analysis is based on the secondary data compiled from the Census Reports of the Government of India for 1971, 1981 and 1991.

Further, to sharpen the analysis and bring precision in results, all the fifteen major states are classified into three groups, considering participation rate of 1971 as a base separately for total WPR, MPR and FPR. The procedure followed for classification is described below :

All the fifteen states have been classified into three groups in terms of participation rate slabs in descending order or hierarchy, refering to 1971, the initial year of the time period considered here. To explain, if A, B and C denote the lower limits of the intervals in descending order, than A and B have been obtained as arithmetical mean values of the participation rates for the states falling respectively above and below the national level arithmetical mean. The value of C is, obviously, the lowest value of the participation rates across the states. This procedure of classification is followed not only for total work participation rates but also for male participation rates and female participation rates. Finally, the classification of states into above mentioned three groups for 1981 and 1991 have been done by taking into account the class-intervals of different categories of participation rates already used for

such classification in 1971. This enables us to analyse conveniently the upward or downward movements of different states in respects of separately total WPR, MPR and FPR during 1981 and 1991 over the base year 1971.

II. Changes in the Proportion of Total, Rural and Urban Female Workers

(i) Proportion of Female Workers to Total Workers

To begin with, it may be hypothesised that there is a direct and positive relationship between the share of female workers in total workers and the degree of their involvement in economic activities resulting in an increased income. Higher the share of the former, greater would be the degree of involvement of the latter and thereby leading to the higher income. Keeping this background in mind, assessment and analysis of the changes in the share of female workers in the total workers become relevant and the most crucial particularly in the context of economic development. An attempt has, therefore, been made here to carry out analysis in this direction through subsequent paragraphs.

Empirically, it is discernible from the Table 4.2 that the proportion of female workers to the total workers exhibited a significant increase from 17.38 per cent in 1971

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Empirically, it is discernible from the Table 4.2 that the proportion of female workers to the total workers exhibited a significant increase from 17.38 per cent in 1971

Table 4.2 : Proportion of Female Workers to Total Workers

States/INDIA	Percentage of Female Workers to Total Workers		
	1971	1981	1991
Group I			
1. Andhra Pradesh	28.84	31.57	34.63
2. Himachal Pradesh	27.54	26.85	27.79
3. Maharashtra	26.03	29.97	32.53
4. Madhya Pradesh	24.63	28.20	29.21
Combined	**26.62**	**29.91**	**32.17**
Group II			
5. Kerala	23.35	24.30	22.85
6. Tamil Nadu	20.85	28.12	30.37
7. Karnataka	19.99	25.28	28.95
8. Gujarat	15.76	16.60	27.42
9. Bihar	13.96	14.83	16.02
10. Rajasthan	12.72	14.65	19.64
11. Orissa	10.84	16.18	18.18
12. Uttar Pradesh	10.14	8.66	11.73
Combined	**14.98**	**17.19**	**19.60**
Group III			
13. West Bengal	7.48	9.80	12.59
14. Haryana	4.24	7.70	9.72
15. Punjab	1.89	3.75	4.35
Combined	**5.87**	**8.21**	**10.56**
Coefficient of Variation (C.V.)	**50.51**	**46.23**	**41.42**
INDIA (States including Union Territories)	**17.38**	**20.21**	**22.48**

Source : Census of India, General Economic Tables

to 20.21 per cent during 1981 and 22.48 per cent during 1991 at the national level. Further, an observation of state-wise data available in this regard points out to the fact that almost all the major states of India excepting Himachal Pradesh, Kerala and Uttar Pradesh have also experienced a similar trend in the proportion of female workers to the total workers. Thus, one can safely infer that involvement of women workers in various kinds of economic activities has definitely demonstrated a perceptible increase during the reference period as witnessed by the national and state level experiences. In other words, we can say that the process of feminisation of the work force has definitely shown some improvement over the period.

In spite, as would be evident from the Table 4.2, there exists a wide variation in the proportion of female workers among the major states ranging from the lowest in Punjab to the highest in Andhra Pradesh during all the three selected points of time.

Moreover, classification of states by the proportion of female workers to total workers indicates that the four states of Andhra Pradesh, Himachal Pradesh, Maharashtra and Madhya Pradesh qualify for relatively higher proportion of the females in total workeforce, whereas those standing on the lower side in this respect consist of the three states namely West Bengal, Haryana and Punjab. The remaining eight states are found to have achieved the middle level so far as the proportion of female workers is concerned.

Finally, it is heartening to record that inter-state variations in the proportion of female workers to total workers have shown a convergent tendency during the reference period as witnessed by the coefficient of variation which reduced from 50.51 per cent in 1971 to 41.42 per cent during 1991.

(ii) Proportion of Rural Female Workers to Rural Total Workforce

An interesting finding and emerging significant conclusion out of the analysis in previous section promote us to carry out further probing and disaggregating analysis of the issue of the proportion of female workers to total workers, by classifying the total strength of female workers into two sub-sections i.e. rural and urban. In case of the former sector, quick examination from the statistics cited in Table 4.3 that both the findings as well as emergent conclusions in respect of rural female workers to rural total workers are fairly comparable with what we have arrived at by analysing the issue of the proportion of the female workers to total workers in this section. The share of rural female workers in total rural workers has demonstrated an

Table 4.3 : Proportion of Rural Female Workers to Total Rural Workers

States/INDIA	Percentage of Rural Female Workers to Total Rural Workers		
	1971	1981	1991
Group I			
1. Maharashtra	31.35	36.53	40.27
2. Andhra Pradesh	30.88	34.55	38.57
3. Himachal Pradesh	28.83	28.03	28.96
4. Madhya Pradesh	26.42	30.82	32.37
Combined	**29.59**	**33.86**	**32.30**
Group II			
5. Tamil Nadu	22.96	32.03	35.13
6. Karnataka	21.35	27.85	32.55
7. Kerala	19.63	25.28	23.56
8. Gujarat	17.84	19.50	23.59
9. Bihar	14.64	15.74	16.02
10. Rajasthan	13.71	16.18	22.19
11. Orissa	10.93	16.72	19.10
12. Uttar Pradesh	10.87	9.38	12.85
Combined	**15.78**	**18.52**	**21.43**
Group III			
13. West Bengal	8.17	10.74	13.84
14. Haryana	4.02	8.09	10.37
15. Punjab	1.14	2.76	3.38
Combined	**6.05**	**8.71**	**11.34**
Coefficient of Variation (C.V.)	**52.63**	**48.83**	**45.19**
INDIA (States including Union Territories)	**18.86**	**22.45**	**25.19**

Source : Census of India, General Economic Tables

indiscriminate increase on All India level from 18.86 per cent in 1971 to 22.45 per cent in 1981 and 25.19 per cent in 1991. An examination of the state-wise statistics in this regard suggests that in almost all the states excepting Himachal Pradesh, Kerala and Uttar Pradesh, the proportion of rural female workers has significantly increased during whole of the reference period. In spite of this it is disheartening to record that there exists a wide variation in the proportion of rural female workers across the states in India ranging from the highest in Maharashtra and the lowest in Punjab at each of the selected points of time.

Looking to the classification of states by the proportion of rural female workers we further notice that there are in all four states of Maharashtra, Andhra Pradesh, Himachal Pradesh and Madhya Pradesh which have demonstrated a better performance in terms of the higher proportion of rural female workers, whereas those found to have demonstrated poor performance in this respect consist of the three states of West Bengal, Haryana and Punjab. The remaining eight states are found to have qualified for middle level performance, so far as the proportion of rural female workers to total rural workers is concerned.

Finally it is heartening to observe that inter-state variations in respect of the rural female proportion has demonstrated a tendency of covergence rather than divergence as witnessed by the reduction in the coefficient of variation

from 52.63 per cent in 1971 to 48.83 per cent in 1981 and 45.19 per cent during 1991. This also goes in support of the previous finding that the process of feminisation in the total workforce have shown considerable improvement during the reference period.

(iii) Proportion of Urban Female Workers to Total Urban Workers

Contrary to the above, incase of urban areas too, the proportion of the urban female workers has showed a continuous increase from 10.41 per cent in 1971 to 11.65 per cent in 1981 and 13.01 per cent during 1991 on the All India level, as would be evident from Table 4.4.

Like rural areas, there also exists a wide variation in this proportion among the major states under question, ranging from the highest in Kerala and the lowest in Punjab. Besides, almost all the states excepting Orissa, Gujarat and Punjab have demonstrated a rising trend in the proportions of the urban female workers as witnessed by the supporting data during all the three selected points of time.

Moreover, according to the classification of states by the proportion of urban female workers, there are in all, two states of Kerala and Andhra Pradesh, which qualify for higher proportion of the urban female workers, whereas those occupying their positions at the lower side of the

Table 4.4 : Proportion of Urban Female Workers to Total Urban Workers

States/INDIA	Percentage of Urban Female Workers to Total Urban Workers		
	1971	1981	1991
Group I			
1. Kerala	19.28	19.66	20.77
2. Andhra Pradesh	16.70	16.79	17.91
Combined	**17.38**	**17.47**	**18.72**
Group II			
3. Karnataka	14.77	16.93	18.33
4. Tamil Nadu	14.74	17.16	17.70
5. Madhya Pradesh	12.02	13.56	14.50
6. Maharashtra	11.77	13.37	15.36
7. Orissa	9.87	11.74	11.29
8. Gujarat	9.37	9.06	9.70
9. Himachal Pradesh	8.83	12.46	15.09
10. Bihar	7.17	7.33	8.00
11. Rajasthan	6.97	7.83	9.24
Combined	**11.70**	**13.07**	**14.17**
Group III			
12. West Bengal	5.59	7.26	9.15
13. Haryana	5.24	6.34	7.69
14. Uttar Pradesh	5.05	5.07	6.53
15. Punjab	4.37	5.83	4.35
Combined	**5.21**	**6.03**	**7.54**
Coefficient of Variation (C.V.)	**44.87**	**40.62**	**39.27**
INDIA (States including Union Territories)	**10.41**	**11.65**	**13.01**

Source : Census of India, General Economic Tables

proportions comprise the four states of West Bengal, Haryana, Uttar Pradesh and Punjab. The remaining nine states are found to have achieved the middle level in this regard and, have therefore, occupied their places in the middle category of the proportion of urban female workers.

Besides, like rural areas, the inter-state variations in respect of this proportion in urban areas also has demonstrated a tendency of convergence during the reference period as supported by the coefficient of variation, which has reduced from 44.37 per cent in 1971 to 40.62 per cent in 1981 and then marginally to 39.27 per cent during 1991. Thus, while summing up, it appears that in urban areas also, the process of feminisation in urban workforce has gradually gained momentum during the reference period.

Finally, a comparison of the proportions of urban female workers to those of the rural female workers indicates that the proportions in both the urban and rural areas have demonstrated rising trends at the national level during the reference period. However, these proportions in case of the former are found to be much lower as compared to those of the latter at all the three selected points of time during the reference period. Differencials in incidence of poverty and levels of education or literacy percentage are identified as reasons attributable to this ironical situation. In rural areas, owing to poor economic conditions may be that illiterate female adults are forced to fight for livelihood

through engaging themselves in both types of farming and non-farming activities as wage earners. Contrastingly, in case of urban areas, the situation seems to be quite different; in spite of being educated, mostly the female adults are found to be engaged in household affairs not very much crazy for jobs probably because of a relatively less intensity of economic pressure at the family level. However, it is interesting to highlight that the process of feminisation in the total workforce, which have gained momentum over the period, is a common characteristic applicable to both urban and rural areas.

III. Patterns of Employment Growth

To begin with, it is worthwhile to restate that the present analysis of the patterns of employment growth is based on the secondary data of main workers procurred from the various Census documents of the Government of India. For purposes of present analysis this whole section is divided into two sub-sections. The sub-section (A) aims at analysing the employment growth of total, male and female workers both at the national and sub-national level separately for the two decades 1971-81 and 1981-91) constituting the whole reference period of the study. Whereas the sub-section (B) is devoted to analysing the petterns of employment growth separately for rural and urban female workers at the national and sub-national levels during the same period.

A. Patterns of Employment Growth : Total, Male and Female Workers

It is, indeed, heartening to record that average annual growth rate of employment of the total workers on All India level has increased from 2.11 per cent in 1971-81 to 2.62 per cent during 1981-91. A similar rising trend in respect of both male and female workers also is quite perceptible, as would be evident from Table 4.5.

However, the scenario emerging out of the scrutiny of the data pertaining to employment growth of total workers for different states appears to be somewhat mixed; in some of the states, employment growth of total workers has increased during the period 1981-91 compared to the period 1971-81, whereas in some other states the corresponding growth rate is noticed to be reduced during the same period. Almost a similar kind of experiences are also discernible in respect of both male and female workers so far as employment growth is conerned.

Quite interestingly it is noticeable from the table that performance of employment growth in respect of females has always been better than than its male counterpart during each of the selected points of time both on All India level and also in most of the major states.

There appears to have been almost constancy in the growth rate of female employment at 3.65 to 3.68 per cent

Table 4.5 : Pattern of Employment Growth : Total, Male and Female Workers

States/INDIA	Average Annual Growth Rates of Employment					
	1971-81			1981-91		
	Total	Male	Female	Total	Male	Female
Group I						
Haryana	3.28	2.90	9.63	2.57	2.33	4.97
Karnataka	2.97	2.28	5.42	2.40	1.88	3.80
Maharashtra	2.82	2.25	4.28	2.47	2.09	3.33
Madhya Pradesh	2.74	2.23	4.13	2.21	2.07	2.57
Combined	**2.62**	**2.30**	**4.51**	**2.38**	**2.05**	**3.23**
Group II						
Gujarat	2.67	2.62	3.25	2.54	2.16	4.16
Rajasthan	2.64	2.40	4.09	2.92	2.28	5.98
Tamil Nadu	2.59	1.60	5.68	1.83	1.41	2.62
Orissa	2.35	1.69	6.51	1.86	1.60	3.06
Punjab	2.33	2.14	9.17	2.16	2.09	4.06
Andhra Pradesh	2.30	1.93	3.23	2.30	1.83	3.28
West Bengal	2.23	1.98	5.02	2.92	2.62	5.30
Bihar	1.71	1.62	2.33	2.14	3.72	2.92
Uttar Pradesh	1.71	1.48	0.12	2.47	2.11	5.61
Combined	**2.16**	**1.93**	**3.51**	**2.35**	**2.30**	**3.77**
Group III						
Himachal Pradesh	1.41	1.41	1.14	1.93	1.78	2.25
Kerala	0.88	0.53	1.30	2.02	2.21	1.41
Combined	**0.98**	**0.88**	**1.28**	**2.00**	**2.11**	**1.48**
INDIA	**2.11**	**1.76**	**3.65**	**2.62**	**2.35**	**3.68**
Coefficient of Variation	**26.84**	**28.86**	**60.22**	**14.33**	**23.68**	**34.62**

during the two sub-periods at the national level. However, state-wise temporal analysis indicates that there exists a significant difference in the growth rates of female employment between the two sub-periods. In this connection, the states, which have attained relatively higher growth rate of female employment in eighties compared to seventies, consist of Gujarat, Rajasthan, Andhra Pradesh, West Bengal, Bihar, Uttar Pradesh, Himachal Pradesh and Kerala, whereas the states showing a relatively poor performance include Haryana, Karnataka, Maharashtra, Madhya Pradesh, Tamil Nadu, Orissa and Punjab.

In spite of almost a satisfactory improvement in growth rates of employment of total, male and female workers, still there remains a wide range of inter-state variations not only in employment growth of total workers but also in cases of male as well as female workers, as would be evident from the Table 4.5 cited above. However, over the period there appears to have been a considerable reduction in inter-state variations of employment growth for total, male and female workers as witnessed by the considerable reductions in coefficient variations during the eighties as compared to the seventies. For example, in case of total workforce, the coefficient of variation reduced from 26.84 per cent to 14.33 per cent, whereas in respect of males and females the corresponding reductions were from 28.86 per cent to 23.68 per cent and from 60.22 per cent to 34.62 per cent respectively during the same period.

B. Patterns of Employment Growth of Female Workers : Rural and Urban

Looking to employment growth of female workers in disaggregative terms, it is noticeable from the following Table 4.6 that average annual growth rate of female employment has not demonstrated any significant improvement in either of the case – whether rural or urban – at the national level during the reference period.

For example, the average annual growth rate of female employment in rural India has increased marginally from 3.53 per cent in 1971-81 to 3.56 per cent during 1981-91. Whereas the corresponding growth rate in respect of female employment in urban India registered a shortfall marginally from 4.88 per cent in 1971-81 to 4.47 per cent during 1981-91. However, such temporal variations in the growth rates of female employment separately for both urban and rural areas at the state level are found to be meaningfully distinct during this period. For example, the state of Uttar Pradesh, which experienced a negative growth rate (-0.21 per cent) of rural female employment in 1971-81, demonstrated a much superior performance with 5.56 per cent growth rate of rural female employment during 1981-91. Contrary to this, take the case of Punjab, where the growth rate of rural female employment showed a considerable reduction from 11.00 per cent in 1971-81 to 4.01 per cent during 1981-91. Besides, these temporal variations are also noticeable in respect of

Table 4.6 : Pattern of Employment Growth of Female Workers : Rural and Urban

States/INDIA	Average Annual Growth Rates of Employment for Female Workers			
	1971-81		1981-91	
	Rural	Urban	Rural	Urban
Group I				
Haryana	10.10	7.80	4.88	5.40
Karnataka	5.37	5.73	3.75	3.96
Maharashtra	4.23	4.59	3.06	4.83
Madhya Pradesh	4.01	5.98	2.40	4.47
Combined	**4.20**	**5.27**	**-2.00**	**4.54**
Group II				
Gujarat	3.21	3.58	4.18	4.01
Rajasthan	4.62	6.24	6.05	5.37
Tamil Nadu	5.95	4.44	2.64	2.52
Orissa	6.48	7.08	3.11	2.32
Punjab	11.00	7.30	4.01	4.13
Andhra Pradesh	3.18	3.99	3.14	4.30
West Bengal	5.02	5.07	5.66	5.15
Bihar	2.25	3.74	2.92	3.09
Uttar Pradesh	-0.21	4.61	5.56	5.80
Combined	**3.40**	**4.54**	**3.75**	**3.92**
Group III				
Himachal Pradesh	1.02	6.58	2.16	5.02
Kerala	1.09	2.61	0.25	6.58
Combined	**1.07**	**2.78**	**0.69**	**6.51**
INDIA	**3.53**	**4.88**	**3.56**	**4.47**
Coefficient of Variation	**66.82**	**27.98**	**41.62**	**25.78**

the growth rates of urban female employment at the state level during the reference period.

One of the most striking finding based on the scrutiny of data recorded in Table 4.6 is that performance of growth rate of female employment in urban areas was better than the corresponding growth rate in rural areas during both the sub-periods, i.e., 1971-81 and 1981-91 not only on All India level but also in many of the major states under review.

Finally, although cross-section data incorporated in Table 4.6 indicates that there is still a wide range of inter-state variations in respect of employment growth of female workers in India. But at the same time, it appears that our policies and programmes have proved to be effective if not in reducing but at least arresting the growing regional inequalities in this regard. This is adequately supported by the reductions in their coefficient of variation in growth rates of female employment in rural areas for 66.82 per cent to 41.62 per cent and in urban areas from 27.98 per cent to 25.78 per cent during the reference period.

IV. Trends in the Total, Female and Male Participation Rates

(i) Trends in Total Participation Rates (TPR)

The total work participation rate, defined in terms of the proportion of total main workers to the total population,

is found to have exhibited a marginal increase with a rising trend from 32.93 per cent in 1971 to 33.48 per cent during 1981 and 34.18 per cent during 1991, as would be clear from Table 4.7.

A similar trend is noticed during this period in cases of the nine states of Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka, Gujarat, Orissa, Punjab, West Bengal and Haryana. Besides, of the remaining six states, the two of Madhya Pradesh and Rajasthan have shown a persistent increase in the total work participation rate, whereas in case of the remaining four states of Himachal Pradesh, Bihar, Uttar Pradesh and Kerala, the work participation rates have demonstrated either a continuous or persistent decrease.

It is further noticed that there exists a wide range of variations in work participation rates among the states from the highest (41.39 per cent) in Andhra Pradesh to the lowest (26.44 per cent) in Haryana in 1971, whereas the corresponding achievements varied from the highest (42.26 per cent) in Andhra Pradesh and the lowest (26.68 per cent) in Kerala during 1981 and that of 1991 the corresponding achievements were the highest (42.77 per cent) in Andhra Pradesh and the lowest (28.53 per cent) in Kerala.

It is quite surprising that there appears to be no direct and positive relationship between the level of development and the work participation rates. For example,

Table 4.7 : Total Work Participation Rate

States/INDIA	Total Work Participation Rate		
	1971	1981	1991
Group I			
1. Andhra Pradesh	41.39	42.26	42.77
Combined	**41.39**	**42.26**	**42.77**
Group II			
2. Himachal Pradesh	36.95	34.37	34.41
3. Madhya Pradesh	36.72	38.41	37.67
4. Maharashtra	36.48	38.71	39.29
5. Tamil Nadu	35.78	39.31	40.81
6. Karnataka	34.74	36.76	38.45
7. Gujarat	31.45	32.23	34.12
8. Rajasthan	31.24	30.48	31.62
9. Orissa	31.22	32.75	32.78
10. Bihar	31.03	29.68	29.66
11. Uttar Pradesh	30.94	29.23	29.73
Combined	**33.24**	**33.67**	**32.09**
Group III			
12. Kerala	29.12	26.68	28.53
13. Punjab	28.87	29.35	30.07
14. West Bengal	27.91	28.26	30.23
15. Haryana	26.44	28.35	28.66
Combined	**28.18**	**28.07**	**29.64**
Coefficient of Variation (C.V.)	**12.21**	**14.52**	**13.55**
INDIA (States including Union Territories)	**32.93**	**33.48**	**34.18**

Source : Census of India, General Economic Tables and General Population Tables

although the states of Punjab, West Bengal and Haryana are seemed to have attained a higher level of overall development, they have experienced a poor performance in respect of work participation rates. Contrary to this, there are certain states like Madhya Pradesh, Rajasthan, Orissa and Bihar, which have generally demonstrated a poor performance in respect of overall development, but have experienced a much better performance in respect of the work participation rates. In most of the cases, the work participation rates are approximately 30 per cent and above and exceptions to this rule are noticed in respect of the four states of Kerala, Punjab, West Bengal and Haryana only.

Above all, inter-state variations in respect of the total work participation rates during the reference period appear to have demonstrated a tendency of divergence or polarisation, as witnessed by the persistent increase in the coefficient of variation from 12.21 per cent in 1971 to 13.55 per cent during 1991.

(ii) <u>Trends in Male Participation Rates</u> (MPR)

Unlike that work participation rates, the male participation rates, defined in terms of male workers to the total male population, have demonstrated continuously a marginal decrease from 52.51 per cent in 1971 to 51.62 per

cent in 1981 and 51.00 per cent during 1991 as would be evident from the Table 4.8. Of course, this is a disheartening situation and poses an unrosy scene of increased rate of unemployment resulting from ever growing additional labour force.

Moreover, it desciples from the scrutiny of the Table 4.8 that ten out of the total fifteen states under review have experienced a reduction in their male participation rates during the reference period, whereas the remaining five states namely Tamil Nadu, Punjab, Gujarat, West Bengal and Haryana have shown a constant or persistent increase in their male participation rate during the period of 1971-91. It appears that these five states have generally attained a higher level of development resulting from more and more application of better tools and technology, industrial methods of production, automation and mechanisation, leaving less scope for additional employment.

Besides, according to the classification of states by the male participation rate we notice that there are, in all, three states of Andhra Pradesh, Tamil Nadu and Orissa, which qualify for higher level of male participation rates, whereas those occupying their positions on the lower side in the ladder with lowest level of male participation rates are the three in number and comprise West Bengal, Haryana and Kerala. The remaining nine states are found to have achieved the middle level of male participation rate during the reference period.

Table 4.8 : Male Participation Rate (MPR)

States/INDIA	Male Participation Rate (MPR)		
	1971	1981	1991
Group I			
1. Andhra Pradesh	58.22	57.12	55.13
2. Tamil Nadu	56.02	55.85	56.10
3. Orissa	55.32	54.38	52.86
Combined	**56.92**	**56.08**	**55.01**
Group II			
4. Karnataka	54.40	53.90	53.53
5. Madhya Pradesh	53.74	53.52	51.51
6. Punjab	52.82	53.15	54.12
7. Himachal Pradesh	52.43	49.59	49.08
8. Uttar Pradesh	52.24	50.31	49.31
9. Bihar	52.16	49.20	47.60
10. Maharashtra	52.09	52.51	51.25
11. Rajasthan	52.09	49.92	48.53
12. Gujarat	51.24	52.19	53.17
Combined	**52.51**	**51.38**	**50.36**
Group III			
13. West Bengal	48.83	48.71	50.66
14. Haryana	47.27	48.94	49.26
15. Kerala	45.00	41.04	44.82
Combined	**47.59**	**46.74**	**48.87**
Coefficient of Variation (C.V.)	**6.18**	**7.27**	**5.93**
INDIA (States including Union Territories)	**52.51**	**51.62**	**51.00**

Source : Census of India, General Economic Tables and General Population Tables

Resultantly, we notice that there exists a wide variation in male participation rates among the major states of India, ranging from the highest (55.13 per cent) in Andhra Pradesh and the lowest (44.82 per cent) in Kerala during 1991. In spite of this, the states seem to have shown a convergence tendency in regard to male participation rates during the reference period as supported by the persistent decrease in the coefficient variation from 6.18 per cent in 1971 to 5.93 per cent during 1991.

(iii) Trends in Female Participation Rates (FPR)

The female participation rate, defined in terms of the proportion of female workers to the total female population, is found to have shown a considerable increase at the national level during the reference period, starting from 11.88 per cent in 1971 to 14.07 per cent in 1981 and ending at 16.03 per cent during the Census year of 1991. This is also supported by the fact that almost all the states excepting Himachal Pradesh, Kerala and Uttar Pradesh have demonstrated a similar increasing trend in female participation rates during the period of 1971-91, as would be evident from the Table 4.9.

Among the states showing exceptions, it is noticed that the female participation rates in cases of Himachal Pradesh and Kerala have persistently decreased respectively from

Table 4.9 : Female Participation Rate (FPR)

States/INDIA	Female Participation Rate (FPR)		
	1971	1981	1991
Group I			
1. Andhra Pradesh	24.16	27.01	30.05
2. Himachal Pradesh	20.79	18.72	19.36
3. Maharashtra	19.70	23.98	26.47
4. Madhya Pradesh	18.65	22.34	22.82
Combined	**20.83**	**24.31**	**26.31**
Group II			
5. Tamil Nadu	15.09	22.36	25.13
6. Karnataka	14.20	18.95	22.73
7. Kerala	13.49	12.76	12.81
8. Gujarat	10.26	11.03	13.73
9. Bihar	8.88	9.06	9.97
10. Rajasthan	8.34	9.32	13.04
11. Orissa	6.81	10.70	12.10
12. Uttar Pradesh	6.71	5.40	7.45
Combined	**9.89**	**11.27**	**13.27**
Group III			
13. West Bengal	4.43	5.81	7.96
14. Haryana	2.41	4.69	6.01
15. Punjab	1.18	2.27	2.79
Combined	**3.49**	**4.94**	**6.67**
Coefficient of Variation (C.V.)	**58.16**	**56.48**	**52.11**
INDIA (States including Union Territories)	**11.88**	**14.07**	**16.03**

Source : Census of India, General Economic Tables and General Population Tables

20.79 per cent and 13.49 per cent in 1971 to 19.36 per cent and 12.81 per cent during 1991, whereas in case of Uttar Pradesh we notice an opposing situation, wherein the female participation rate has persistently increased from 6.71 per cent in 1971 to 7.45 per cent during 1991. Based on the foregoing discussion, one may safely conclude that the feminisation in the process of work participation rates have gained momentum both at the national and state levels during the reference period.

Moreover, it is clear from the classification of states by the female participation rate that there are, in all, four states of Andhra Pradesh, Himachal Pradesh, Maharashtra and Madhya Pradesh which occupy higher levels of the female participation rate and those qualifying for lower levels in this respect consist of the three states of West Bengal, Haryana and Punjab. The remaining eight states have attained middle level of the female participation duing the reference period.

However, in spite of the existing wide range of inter-state variations in female participation rates it is encouraging to record that these variations over the period have demonstrated a tendency of convergence or depolarisation. This shows that the policies and programmes, which were implemented during the previous two decades, have proved to be effective in generating additional female employment in almost all the major states of India.

Finally, a comparative study of participation rates between males and females reveals that male participation rates are three to four times greater than that of female participation rates not only at the national level but also at the sub-national level. This means that our workforce suffers from gender bias favouring more to males and less to females. To minimise the intensity of this biasness, a quota system for women employment has been brought under enforcement by the government during the recent past. It is hoped that an effective implementation of this policy will go a long way in solving the problem of the gender bias in future.

V. Inter-Category Movements of States by Proportions, Employment Growth and Participation Rates of Female Workers

In order to specify and sharpen the major findings of the previous sections, attempts have been made here to analyse the inter-category movements of states by the proportions, employment growth and participation rates of female workers during the reference period. For this purpose the major states under review here have been placed into high, medium and low categories and inter-category movements of states in respect of the aforesaid aspects of female workers during the period 1971-91, considering the former as base year.

(i) Inter-Category Movements of States by Proportions of Female Workers

As stated previously there has been a significant improvement in the proportions of female workers to total workers in most of the major states of India. So far as inter-category movements of states pertaining to the proportion, of the female workers is concerned, it is interesting to record that none of the states have experienced downward movements during the reference period as would be evident from the Table 4.10.

Contrary to this it is heartening to note that there are five out of the fifteen states which have demonstrated upward movements as follows.

The states of Karnataka, Tamil Nadu and Gujarat which occupied their position in medium category in 1971 have qualified for high category during 1991. Similarly the two states of West Bengal and Haryana which were placed in low category in 1971 have gone one step ahead in the latter and qualified for their placement in medium category. However, in case of the remaining ten states there was neither upward nor the downward movement over the period and it has been possible for these states to maintain their status quo only. Based on these findings one arrives at the conclusion that in spite of marginal upgradation in proportion of female workers to total workers the inter-regional patterns of these proportions remain almost constant.

Table 4.10 : Inter-Category Movements of States by Proportion of Female Workers to Total Workers

1991

	High	Medium	Low	Total
	24.46 & above	9.63 to below 24.46	Below 9.63	
High 24.46 & above	Andhra Pradesh Himachal Pradesh Madhya Pradesh Maharashtra (4)			4
Medium 9.63 to below 24.46	Gujarat Karnataka Tamil Nadu (3)	Bihar Orissa Rajasthan Kerala Uttar Pradesh (5)		8
Low Below 9.63		Haryana West Bengal (2)	Punjab (1)	3
Total	7	7	1	15

(ii) Inter-Category Movements of States by the Employment Growth of Female Workers :

The classification of states by employment growth of female workers clearly indicates that nine out of the fifteen major states have not demonstrated any kind of inter-category movement during the period 1971-91. Besides, the experiences of both downward and upward movements of states from one category to another are quite discernible from the Table 4.11.

As regards downward movement we notice that the states of Punjab and Haryana which occupied their position in high category in 1971 could qualify for only medium category during 1991. Similarly the status of the states of Madhya Pradesh and Tamil Nadu lowered down from medium category in 1971 to low category during 1991. Contrary to this unrosy scene it is however quiting to record that the states of Bihar and Uttar Pradesh which occupied their positions in low category in 1971 have demonstrated an upward movement to medium category during 1991. Considering these findings one may also conclude that by and large there was no any significant change in the inter-regional pattern of unemployment growth of female workers during this period.

Table 4.11 : Inter-Category Movements of States by Employment Growth of Female Workers

1981-91

	High 6.91 & above	Medium 2.65 to below 6.91	Low Below 2.65	Total
High 6.91 & above		Punjab Haryana (2)		2
Medium 2.65 to below 6.91		Andhra Pradesh Gujarat Karnataka Maharashtra Orissa Rajasthan West Bengal (7)	Madhya Pradesh Tamil Nadu (2)	9
Low Below 2.65		Bihar Uttar Pradesh (2)	Kerala Himachal Pradesh (2)	4
Total		11	4	15

(iii) Inter Category Movements of the States by Participation of Rates of Female Workers

It appears that the changes in the proportion and employment growth of female workers have direct bearing on the female participation rates. A closer examination of the changes in the female participation rates over the period goes in favour of the said statement. To elaborate it further, as stated previously there was no any significant change in inter-regional pattern of the proportion and employment growth of female workers during the period under consideration. Resultantly we notice that inter-regional pattern of female participation rates has also not demonstrated any meaningful change over the period as would be evident from the Table 4.12.

It is observed that almost all the states excepting Tamil Nadu, Karnataka and West Bengal have been able to maintain their status quo only. In other words the placement of these states in different categories remained constant without experiencing any kind of inter-category upward and downward movements. Contrary to this, it is heartening to note that the states of Tamil Nadu and Karnataka which occupied their position in medium category in 1971 have experienced an upward movement in high category during 1991. Similarly the state of West Bengal demonstrated an upward movement from low category in 1971 to medium category during 1991. Based on this surface analysis it is difficult to

Table 4.12 : Inter-Category Movements of States by Female Participation Rates

1991

	High 18.01 & above	Medium 6.13 to below 18.01	Low Below 6.13	Total
High 18.01 & above	Andhra Pradesh Maharashtra Himachal Pradesh Madhya Pradesh (4)			4
Medium 6.13 to below 18.01	Karnataka Tamil Nadu (2)	Bihar Gujarat Kerala Orissa Rajasthan Uttar Pradesh (6)		8
Low Below 6.13		West Bengal (1)	Haryana Punjab (2)	3
Total	6	7	2	15

provide sufficient objective reasoning in favour of our statement that the proportions and employment growth of female workers are directly linked with female participation rates. A further examination of this issue would require a regress analysis of this theme through a separate study by the researchers of this area in future.

CHAPTER V

WOMEN PARTICIPATION AND ECONOMIC DEVELOPMENT IN UTTAR PRADESH : INTER-REGIONAL ANALYSIS

Introduction

As explained earlier, the present study is confined to make an indepth appraisal of the contribution of women in the Economic Development of Uttar Pradesh, hence for study purpose, the state of Uttar Pradesh has been classifed broadly into five economic regions viz. Western, Central, Eastern, Hill and Bundelkhand for which comparable data is available for the whole reference period i.e. 1971, 1981 and 1991. As the data regarding the marginal workers for the Census year 1971 was not available hence it was deemed worthwhile to exclude the marginal worker from the purview of present analysis and concentrate the study only on the basis of main workers for which comparable data is available at all the three selected points of time.

The study under this chapter is based on the hypothesis that women participation will differ from one region to another depending upon the level of development, geo-physical and climatic conditions etc. On the basis of this hypothesis the present chapter is divided into following sections :

I. **Salient Geo-Physical and Economic Features of U.P. State**

A. Location, Geo-Physical Conditions and Administrative Set-up

B. Demographic Background

(a) Population

(b) Sex-Ratio

(c) Density of Population

(d) Urbanisation

(e) Literacy

C. Economic Structure

(a) State and Per Capita Income

(b) Sector-wise Economic Contribution

(c) Infrastructure Development

(d) Status of Social Sector

II. Trends in Women Participation : Inter-Regional Expriences

III. Determination of Inter-relationship between the Female Participation Rate (FPR) and Development through Econometric Analysis

IV. Findings and Conclusions

1. Location, Geo-Physical Conditions and Administrative Set-up

Uttar Pradesh which is one of the largest states of India, which lies between 25-31° North Latitude and 77-84° East Longitude.[1] The state represents 8.9 per cent of the total geographical area of the country.[2] It ranks fourth area-wise after Madhya Pradesh, Rajasthan and Maharashtra.[3] On the other hand, U.P. stands first in terms of population and covers 16.51 per cent of the India's total population.[4]

According to geo-physical conditions the U.P. is sub-divided into three parts - (i) Himalayan Region, (ii) Sub-Himalayan Belt and Gangetic Plain, and (iii) Southern Plateau.[5] The first sub-region has extremely cold climate with snow fall during the winter, besides having an annual rainfall of more than 200 centimeters. The second sub-region is characterised by humid temperature and qualifies for extreme climate with temperature ranging from 3 centigrades to 40 centigrades, besides having average annual rainfall nearly 100 centrimeters. Lastly, the sub-region three (Southern Plateau) consists of rocky Vindhyan hills suffering from extremely hot climate with average annual rainfall of less than 80 centimeters. The whole state is divided into five economic regions covering in toto 68 districts[6] with regional break-up as follows :

Nine in the Hill Region, Twenty One in the Western, Ten in the Central, Twenty Two in the Eastern and Six in the Bundelkhand Region. The soil and climatic conditions of these five regions differ widely from each other giving rise to noticeable variations in the shape and size of economic activity particularly relating to agriculture and allied occupation.

Administratively the whole state is divided into thirteen divisions, sixty eight districts, two hundred ninty five tehsils eight hundred ninty seven development blocks and one lakh twelve thousand eight hundred and four revenue villages.[7]

2. Population[8]

The total population of the state increased from 883 lakhs in 1971 to 1189 lakhs in 1981 and 1391 lakhs during 1991. In the decade 1961-71 the population growth in the state was 19.8 per cent which increased to 25.48 per cent during the decade 1981-91 as against the corresponding percentage of 23.51 on All India level. As regards regional representation in total population of the state, the share of Eastern region according to 1991 Census is found to be the highest (37.9 per cent) whereas the corresponding share of the Hill region is found to be the lowest (4.3 per cent). The most striking phenomenon transpiring from the scrutiny of

the regional population is that of the economic region of the state. Hill and Bundelkhand regions are found to be less populated whereas the rest three regions are found to be heavily populated as witnessed by their lion share in total population of the state. This is also adequately supported by the regional differences in density of the population of the state.

According to 1991 Census the density of population in the state is calculated at 473 as against 274 in All India level excluding Jammu & Kashmir. Besides there exists wide variations in inter-regional density of population in the state. It is lowest (95) persons per sq. km. of area in Hill region followed by the corresponding figure of (185) in Bundelkhand region whereas these distinct densities in respect of Eastern, Western and Central regions are found to be 458, 479 and 428 respectively.

The sex-ratio in the state during 1991 was 879 with highest 955 in Hill region and lowest 841 in Western region.

Regarding the urbanisation, it is seen that the proportion of urban population to total population which was 14.2 in 1971 increased to 17.9 in 1981 and 19.8 during 1991. Even in respect of urbanisation too, there exists a wide range of regional variations ranging from the highest (26.3 per cent) in Western region to the lowest (11.6 per cent) in Eastern region.

The level of literacy defined in terms of literacy percentage has almost doubled in the state as witnessed by with increase in literacy percentage from 21.70 in 1971 to 41.62 during 1991. Scrutiny of the educational level, achievements separately for urban and rural areas points to the fact that our achievements in the education have gone in favour of urban areas. In its upport we notice that the literacy rate in rural areas of the state according to 1991 Census is 36.66 per cent whereas the corresponding achievements of the urban areas of the state in the matter of education are found to be as high as 61 per cent. An interesting and more rewarding phenomenon is that inter-regional variations in educational levels are not that much sensitive and serious as noticed in other spheres earlier. The literacy percentage is found to be the highest (59.58 per cent) in Hill region and the lowest (38.55 per cent) in Eastern region of the state. It appears that our educational policies and programmes implemented in the past have by and large resulted in indiscriminate spread effects across the regions in the state.

3. State and Per Capita Income

Like past, the income of the state at 1980-81 prices has also demonstrated a continuous increase from Rs.14012 crores in 1980-81 to Rs.22570 during 1991-92 representing all through the period a share of approximately 12.2 per cent in

national income of the country. Moreover, per capita income of U.P. in 1980-81 at constant prices of 1980-81 was Rs.1278 which was far below of the corresponding figure upon All India level sharing a gap of Rs.352. This gap went on increasing over the period and during 1991-92 the per capita income of the state was Rs.1606 as compared to Rs.2174 at the national level, widening a gap to the tune of Rs.568.[9] A relatively less performance of U.P.'s economy in terms of the average annual growth rate of income provides at least some justification to this worsening situation. The annual growth rate of income in the state during the period 1980-81 to the period 1991-92 is found to be 4.4 per cent whereas the corresponding percentage on All India level works out to 4.8. This shows that even in growth performance U.P. lagged behind the national level achievement.[10]

Regarding the diversification of state economy it is observed that the contribution of primary sector to total state income at constant prices was 52.3 per cent in 1980-81 whereas the corresponding contribution of secondary and tertiary sectors estimatd to be 15.3 per cent and 32.4 per cent respectively. It appears that the state economy has undergone several changes over the period resulting in over-diversified structure of the economy. In its support we notice that during 1991-92 the contribution of primary sector to state income reduced to 43.6 per cent as against the corresponding increase in contributions of secondary and tertiary sectors to 19.6 per cent and 36.8 per cent

respectively during the same year.[11] It appears that the loss in contribution of primary sector was compensated by the gains almost equally divided between the secondary and tertiary sectors. The present direction of the state economy is indicative of the fact that the U.P. is heading towards premature tertiarisation which is already being experienced at the national level.

Having described the sub-national level scenario of U.P.'s economy it would be worthwhile to analyse the current state of art of the sectoral economy at the disaggregative level. Within this backdrop in the sphere of agricultural development we notice that there exists a wide range of variation at inter-regional level in agricultural sector. The maximum small size holdings (less than one hectare) were recorded at 82.3 per cent in Eastern region while the minimum percentage 50.1 was in Bundelkhand region as against the state average of 73.8 per cent during 1990-91.[12] The net area sown to total agricultural land area was 89.21 per cent in western region and the lowest 52.25 in Hill region against the state average of 82.64 per cent during 1991-92.[13] The gross value of agricultural produce per hectare of net area sown in the state is 1980-81 at the constant prices of the same year was Rs.4805 which has considerably increased to Rs.6322 during 1990-91. As regards inter-regional situation, the corresponding value of the agricultural produce during 1990-91 was the highest Rs.8056 in Western region and the lowest Rs.3072 in Bundelkhand region.[14] Even one notices the

marked difference in this value between the Eastern and the Western regions in spite of existence of similarities in geo-physcal conditions in both regions. Moreover a similar kind of inter-regional variations are notice in respect of average yield of food grains. This average yield at the state level in 1991-92 was 17.85 quintals ranging from the highest 21.89 in Western region and the lowest 10.18 quintals in the Bundelkhand region.[15]

Within the field of agriculture we notice that the percentage of net irrigated area to net area sown as demonstrated has significantly increased from nearly 55 per cent to 64 per cent during the period 1980-81 to 1991-92. Further there appears to exist an inter-regional variation of the considerable amount in regard to irrigation coverage during 1991-92. The Western region occupies the highest position with irrigation coverage of about 83 per cent whereas the Bundelkhand stands at the lowest position with irrigation coverage of about 35 per cent only.[16] On the other hand, in case of fertilizer consumption it is seen that the consumption of fertilizer per hectare of gross crop area in U.P. during 1991-92 was about 89 kg. as against the highest 106 kg. in Western region and the lowest 28 kg. in Bundelkhand.[17] Besides the proportion of power consumed in agriculture to total power consumption in 1991-92 was the highest (41.4 per cent) in the Western region and the lowest (12.8 per cent) in Hill region as against the state level average of 33.1 per cent.[18]

The uses of agricultural inputs have a cumulative effect on cropping intensity which also shows a significant variation from one region to another in accordance with the aforesaid variations in the uses of agricultural inputs. The cropping intensity in 1991-92 is found to be the highest (163.80 per cent) in Hill region and the lowest (111.53 per cent) in Bundelkhand region as against the state average of 146.85 per cent.[19] To minimise this inter-regional gap in cropping intensity efforts are needed to upgrade the input uses in those regions lagging behind in cropping intensity.

In industrial sector the gross value of industrial produce per capita in the state increased from Rs.338.20 in 1980-81 to Rs.1091.04 in 1987-88. This value is found to be extremely low (Rs.277.89) in Bundelkhand region followed by (Rs.499.45) in Eastern region during 1987-88. Like other spheres, the Western region once again occupies the top position with the corresponding value of Rs.1647.64.[20] On the other hand, there has been a marginal increase in number of working factories per lakh of population from 5.1 in 1980-81 to 6.3 during 1987-88.[21] In this connection Western region again occupies the top position followed by the Eastern region, wheres the Bundelkhand region happens to be an occupant of lowest position.

Regarding the availability of economic infrastructure it is seen that the percentage of electrified villages to total inhabited villages in U.P. increased from 37.64 in 1980-81 to

74.69 during 1992-93. This percentage is found to be the highest (84.42) in Western region and the lowest (62.50) in Bundelkhand region during 1992-93.[22] Moreover, the availability of pucca roads under P.W.D. per lakh of popultion in U.P. showed a considerable increase from 43.58 in 1980-81 to 54.83 during 1992-93[23] In the latest year the Hill region occupied the top position in the matter of the availability of pucca roads and the Eastern region stood at the lowest position. So far as the credit deposit ratio is concerned it has decreased in U.P. from 43.90 in 1980 to 42.57 in 1993. This ratio is found to be the lowest (32.28) in Eastern region and the highest (47.91) in the Western region during the latest year.[24] This shows the financial resources available with banking institutions at the regional level are being utilised partially and more than 50 per cent of these finanial resources either remained unutilised or are being utilised outside the state. Contrary to this, we notice that the number of commercial banks per lakh of population increased from nearly 4 to 6 during the period 1981-93 and the regional variations in this regard appear to be at minimal in all the regions excepting the Hills where its corresponding number is found to be the highest i.e. 11.5.[25]

Under social services, it is seen that the number of allopathic hospitals, dispensaries and primary health centres per lakh of population in 1991-92 was 3.65 at the state level as against the lowest (3.05) in the Western region and the

highest (10.37) in the Hill region.[26] This inter-regional variation is not comparable as the number of private medical practitioners have not been taken into account. In the matter of education it is observed that the number of higher secondary schools per lakh of population remained constant at 5 during the period 1981-82 to 1992-93. This number lies between 3 and 4 in almost all the regions in the state excepting the Hills where the corresponding number of higher secondary schools is found to be the highest i.e. 20.[27] In spite of best efforts made in the past to provide appropriate drinking water facilities at the village level it is disappointing to record inadequacy of drinking water facilities still exist across the regions in the state. The number of villages served with drinking water facility per thousand villages inhabited is reported to be 920 at state level in 1991-92. This means approximately 10 per cent of the total inhabited villages are still deprived of adequate drinking water facilities.[28]

II. Trends in Women Participation : Inter-Regional Experiences

This section is divided into three sub-sections :

A. Trends in Proportion of Female Workers

In this section the proportions of female workers are studied separately at aggregate, rural and urban level.

(i) Change in the Proportion of Female Workers to Total Workers

The hypothesis that there exists a direct and positive relationship between the share of female workers in total workers, and the extent of involvement in economic activities resulting in an increased income is adopted again to examine the female workers' contribution to total economic activity and income at inter-regional level of the state of Uttar Pradesh.

Empirically, it is discernible from the Table 5.1 that the proportion of female workers to the total workers exhibited a sharp decline from 10.14 per cent in 1971 to 8.66 per cent during 1981 and followed by a significant rise to 11.73 per cent in the next decade at the state level. From a minute observation of the inter-regional data for the same period it appears that the economic regions of the state except the Western experienced a similar trend in proportion of female workers to the toal workers. Thus, an inference may be drawn that involvement of women in various kind of economic activity definitely registered a perceptible rise during the reference period as witnessed by the state and manifested in inter-regional level experiences. In other words, it can be concluded that the proess of feminisation of the labour-force at regional level has definitely shown some improvement over the period.

Table 5.1 : Proportion of Female Workers to Total Workers

Regions	Percentage of Female Workers to Total Workers		
	1971	1981	1991
Western	2.16	2.21	4.08
Central	6.34	5.72	8.61
Eastern	14.52	12.23	16.31
Hill	36.59	32.75	34.42
Bundelkhand	12.07	11.25	16.45
U.P.	10.14	8.66	11.73
C.V.	83.25	82.70	64.87

Source : Census of India

As evident from the above table, there exists a wide variation in the proportion of female workers at the inter-regional level ranging from the lowest in the Western region to the highest in the Hill region during all the three selected points of time.

Finally, it is disheartening to record that inter-regional variations in respect of proportion of female workers to total workers have shown a convergent tendency during the reference period as witnessed by the coefficient

of variation which declined from 83.25 per cent in 1971 to 64.87 per cent during 1991.

(ii) Proportion of Rural Female Workers to Rural Total Workers

An interesting finding and significant conclusions emerging therefrom through the analysis carried out in the previous section, motivated to undertake further probing and disaggregating analysis of the issue involving the proportion of female workers to total workers, into two sub-sections i.e. rural and urban. In case of the rural sector, a quick appraisal of the statistics cited in Table 5.2 reveals that the findings as well as the emergent conclusions in respect of rural female workers to rural total workers are fairly comparable as was arrived at by analysing the issue of the female workers to total workers in this section.

The share of rural female workers in total rural workers has registered a decline from 10.87 per cent in 1971 to 9.38 per cent during 1981 and a sudden jump to 12.85 per cent during 1991. An examination of the inter-regional statistics in this regard testifies that in all the five economic regions the proportion of rural female workers showed a marked decline during 1981 but all the regions demonstrated a singnificant rise in this proportion during 1991. The reasons of steep fall during the Census period 1981 may be assigned to (i) change in the definition of 'workers' between

Table 5.2 : Proportion of Rural Female Workers to Total Rural Workers

Regions	Percentage of Rural Female Workers to Total Rural Workers		
	1971	1981	1991
Western	1.83	1.75	3.72
Central	6.69	5.90	9.20
Eastern	15.09	12.80	17.18
Hill	40.44	37.57	40.08
Bundelkhand	12.64	11.86	17.91
U.P.	10.87	9.38	12.85
C.V.	87.22	89.20	70.38

Source : Census of India

two Census periods 1971 and 1981 which reuslted into under enumeration of a sizeable number of 'female workers' into total female workers during the Census period 1981; (ii) transfer of rural workforce to urban area during different Census periods while changing the character of rural area into urban area though the residence of the working population remained the same and which resulted into abnormal reduction of workforce in one area and rise in another area; (iii) decline in participation rates also led to introduction

of new employment generation schemes. In 1981 several special employment schemes like IRDP, NREP and TRYSEM etc. were introduced to genrate additional employment in rural areas. The impact of these schemes were noticed during the next Census period in 1991.

Despite this it is disheartening to record that there exists a wide variation in the proportion of rural female workers across the regional level in Uttar Pradesh ranging from the highest in the Hill region to the lowest in the Western region in all the year under reference.

Finally, it may be observed that inter-regional variation in respect of the proportion of rural female workers to total rural workers has exhibited a tendency towards convergence rather than divergence as witnessed by reduction in the coefficient of variation from 87.22 per cent in 1971 to 70.38 per cent during 1991. The corresponding figure for the year 1981 was, however, 89.20 per cent. This fact supports the previous finding that the process of femenisation in the total workforce has shown considerable improvement during the reference period.

(iii) Proportion of Urban Female Workers to Total Urban Workers

In contrast to the above, the proportion of the urban female workers has showed a continuous increase from 5.05 per

cent in 1971 to 5.07 per cent during 1981 and 6.53 per cent during 1991 on the U.P. level as would be evident from the following table.

Table 5.3 : Proportion of Urban Female Workers to Total Urban Workers

Regions	Percentage of Urban Female Workers to Total Urban Workers		
	1971	1981	1991
Western	3.76	3.80	5.16
Central	4.47	4.66	6.29
Eastern	7.38	6.99	8.47
Hill	6.01	6.81	8.86
Bundelkhand	7.92	8.30	9.56
U.P.	5.05	5.07	6.53
C.V.	27.24	27.16	21.68

Source : Census of India

Like the rural areas, there exists a wide variation in this proportion among the various economic regions of Uttar Pradesh, ranging from the highest in the Bundelkhanad region to the lowest in the Western region. Besides, almost all the economic regions of the state except the Eastern region have

demonstrated a rising trend in the proportions to urban female workers as witnessed by the supporting data during all the selected points of time.

As in the rural areas, the inter-regional variations in respect of this proportion in urban areas have also demonstrated a tendency towards convergence during the reference period as supported by the coefficient of variation, which has fallen marginally from 27.24 per cent in 1971 to 27.16 per cent in 1981 and sharply to 21.68 per cent during 1991. Summing up, it may inferred that at the regional level of Uttar Pradesh, the process of feminisation has gained substantial ground in the urban areas, as well during the period under reference.

Finally, a comparison of the proportion of urban female workers to those of the rural female workers indicates that the proportions in both the urban and rural areas at the U.P. state level have exhibited a rising trend throughout during the reference period except in the decade 1971-81. However, these proportions have demonstrated a uniform and steady increase in the proportion of female workers of urban areas at inter-regional level too except during 1981 in Eastern region compared to the proportion of female workers of rural areas at all the three selected points of time. Differentials in incidence of poverty, sharp difference in the levels of education and literacy percentage, steep decline in employment opportunities in primary sector due to

mechanisation of agriculture, increase in the level of urbanisation etc. are identified as reasons attributable to this ironical situation. In rural areas though owing to poor economic conditions females are forced to participate in economic activities through their involvement in both farming and non-farming sectors, yet gradual replacement of human energy with mechanical energy has resulted into erosion of employment opportunities in the farming and non-farming sectors for both male and female workers but the worst affected group of workers belong to the category of females who have either become jobless or have migrated to nearby urban areas in search of employment, specially in the service sector. Contrastingly, in the urban areas the situation seems to be quite different; in spite of high level of education and high rate of literacy rate in females, mostly the female adults either prefer to have white collar jobs or keep themselves away from engagement in any form of economic activity. They prefer to engage themselves in household affairs not aspiring for or yielding to a pressure for economic emancipation. The females who migrate from rural areas alongwith their husbands or other family members involve themselves actively in economic activities as wage-earners mostly in service sectors.

However, it is worthwhile to conclude that the process of feminisation in the total workforce which gained momentum over the period, is a common feature applicable to both rural and urban areas.

B. Patterns of Employment Growth

For the purpose of analysis, this section is divided into two sub-sections : (i) aims at analysing the employment growth of total, male and female workers both at the U.P. state level and the inter-regional level separately for the two decades (1971-81 and 1981-91), and jointly during 1971-1991 constituting the entire reference period of the study. Whereas sub-section (ii) is devoted to analysing the patterns of employment growth separately for rural and urban female workers at the state level and inter-regional levels during the same period.

(i) Patterns of Employment Growth : Total, Male and Female Workers

It is, indeed, interesting to record that average annual growth rate of employment of total workers in U.P. state level has increased from 1.71 per cent in 1971-81 to 2.47 per cent during 1981-91. Even we notice a growth in employment of total workers during the whole reference period 1971-1991 at the rate of 2.09 per cent. A similar rising trend in respect of both male and female workers is also perceptible especially in the case of total female workers. It was demonstrating a growth rate of 0.12 per cent in 1971-81 and improved suddenly to 5.61 per cent in 1981-91. Even during

Table 5.4 : Pattern of Employment Growth of Workers

Regions	Average Annual Growth Rate of Employment								
	1971-81			1981-91			1971-91		
	Total	Male	Female	Total	Male	Female	Total	Male	Fema
Western	2.09	2.09	2.30	2.40	2.18	8.8	2.25	2.14	5.56
Central	1.76	1.86	0.70	2.25	1.95	6.8	2.02	1.91	3.58
Eastern	1.41	1.69	-0.30	2.64	2.16	5.6	2.02	1.93	2.62
Hill	0.88	1.48	-0.20	2.09	1.83	2.6	1.48	1.67	1.18
Bundelkhand	2.05	2.14	1.40	2.90	2.25	6.9	2.45	2.18	4.06
U.P.	1.71	1.48	0.12	2.47	2.11	5.61	2.09	1.78	2.82
C.V.	27.47	13.32	125.97	11.67	7.61	33.31			

Source : Census of India

the entire reference period the average annual growth rate in female employment was at the rate of 2.82 per cent during 1971-1991. These facts are evident from the Table 5.4.

However, the scenario emerging out of the scrutiny of data pertaining to employment growth for different economic regions appears to be somewhat mixed and is worth highlighting. The pattern of rate of employment growth in some regions during 1971-81 was far below the state level

rate of growth as witnessed by the Table 5.4. It was 0.88 per cent in the Hill region and 1.41 per cent in Eastern region as compared to 1.71 per cent at U.P. level. Similarly, some regions like the Western and the Central have demonstrated a marginal increase in employment growth of total workers while some regions like the Hill and the Eastern have exhibited a substantial improvement in the rate of employment growth during the decade succeeding the period 1971-81. Even if the data for the whole reference period (1971-91) is scrutinized, we find that almost all the regions except the Hill region have shown parity with the state level growth rate. However, the Hill region has shown a very poor growth rate. Almost an identical picture is noticed in case of male employment growth rate which demonstrate an inter-regional disparity exhibited highest in Bundelkhand and lowest in the Hill region during the decade 1971-81. In 1981-91 too, we find the same trend but one more noticeable factor is there. In 1971-81 all the regions were exhibiting a higher employment growth rate as compared to U.P. state level but during the decade 1981-91 we find that the Hill and Central regions were demonstrating a lower rate as compared to state level employment growth rate of male workers. The Hill region was showing a much lower rate of male employment growth even during the entire reference period, 1971-91.

As far as female employment growth is concerned, we find that during 1971-81 two regions namely the Eastern and the Hill had demonstrated a negative growth while the Western

region had recorded the highest growth. At the same time except the Hill region all the regions exhibited a singificant improvement in female employment growth during the next decade 1981-91. Except Hill region which had exhibited a female employment growth rate of 2.6 per cent which was far below the state level average of 5.6 per cent, all the regions were either at par with state level or exhibited a higher rate of female employment during the decade under discussion. If we compare the regional performance with state level performance during the whole period under reference, we observe that the Hill and the Eastern region were lagging behind the state level performance while other regions were far ahead of the state average in respect of female employment growth during 1971-91.

In spite of satisfactory improvement in growth rates of employment of total, male and female workers, there remains a wide range of inter-regional variations not only in employment gorwth of total workers but also in cases of male as well as female workers, as would be evident from Table 5.4 cited earlier. However, over the period there appears to have been a considerable reduction in inter-regional variations of employment growth for total, male and female workers as witnessed by significant reduction in the coefficient of variations during the eighties as compared to the seventies. For example, in case of total workforce, the coefficient of variation went down from 27.47 per cent to

11.67 per cent, whereas in respect of males and females the corresponding reductions were from 13.32 per cent to 7.61 per cent and from 125.97 per cent to 33.31 per cent respectively during the same period.

(ii) Pattern of Employment Growth of Female Workers : Rural and Urban

Looking at the employment growth of female workers in disaggregative terms, it is noticeable from the Table 5.5 that average annual growth rate of female employment registered a significant and remarkable improvement in the case of rural female employment which had exhibited a negative growth rate of -0.21 per cent at U.P. state level during the period 1971-81. It increased to 5.56 per cent during the eighties. The Table 5.5 depicts significant changes in the female employment growth in both rural and urban areas at inter-regional level during 1971-81 and 1981-91.

As evident from the Table 5.5, the average annual growth of female employment in rural areas between the two decades has shown remarkable improvement both at the state and the inter-regional levels. All the regions have demonstrated a very high rate of growth during 1981-91 as compared to 1971-81 in respect of female employment in rural areas. Regions like the Hill and the Eastern which had exhibited a negative growth rate during the period 1971-81 registered a positive

improvement while the Eastern region recorded a significant growth in this area at an average annual growth rate of 5.68 per cent in 1981-91 as compared to a negative growth of -0.51 per cent during the earlier decade.

Table 5.5 : Pattern of Employment Growth of Female Workers : Rural and Urban

Regions	Average Annual Growth Rate of Female Employment								
	1971-81			1981-91			1971-91		
	Total Female	Rural	Urban	Total Female	Rural	Urban	Total Female	Rural	Urb
Western	2.30	0.95	5.12	8.8	10.08	6.58	5.56	5.41	5.9
Central	0.70	0.07	4.18	6.8	6.78	6.08	3.58	3.38	5.1
Eastern	-0.30	-0.51	3.75	5.6	5.68	4.88	2.62	2.54	4.3
Hill	-0.20	-0.60	5.73	2.6	2.45	6.32	1.18	1.05	6.0
Bundelkhand	1.40	1.02	6.17	6.9	7.18	4.52	4.06	3.92	5.1
U.P.	0.12	-0.21	4.61	5.61	5.56	5.80	2.82	2.64	5.12
C.V.	125.97	372.09	18.26	33.31	38.33	14.45			

Source : Census of India

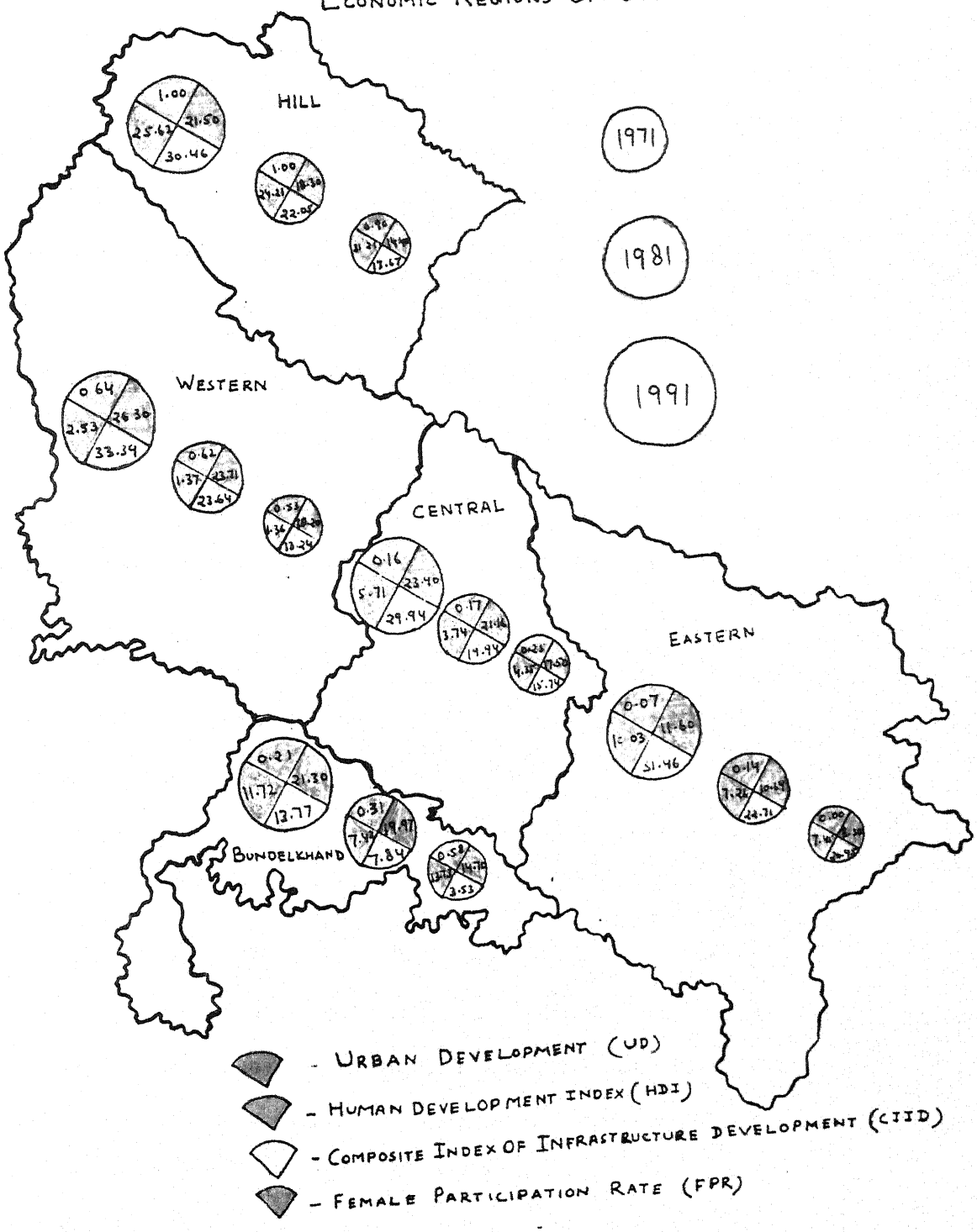
Other regions also showed remarkable improvements during 1981-91. The Central region which had achieved only 0.07 per cent growth rate during 1971-81, recorded a growth rate of 6.78 per cent during 1981-91. Similarly, the Western and the

Bundelkhand regions also made significant recoupment on this front.

One of the most striking finding based on the scrutiy of data recorded in Table 5.5 is that growth rate of female employment in urban areas was better than the corresponding growth rate in rural areas during both the sub-periods i.e. 1971-81 and 1981-91 not only on state level but also at regional level. The overall growth rate of female employment during 1971-91 in urban areas also support this fact that the growth of female employment was comparatively higher in urban areas (5.22 per cent) as compared to rural areas (2.64 per cent). At regional level also the average growth rates in urban areas were much higher than the rural areas.

Although cross-section data incorporated in Table 5.5 indicates that there is still a wide range of inter-regional variations in respect of employment growth of female workers in Uttar Pradesh, yet at the same time it appears that state government policies and programmes have proved to be effective if not in reducing, at least in arresting the growing inter-regional inequalities in this regard. This is adequately supported by the reductions in the coefficient of variations in growth rates of female employment in rural areas from 372.09 per cent to 38.33 per cent and in urban areas from 18.26 per cent to 14.45 per cent during the reference period.

Economic Regions Of Uttar Pradesh



C. Trends in Work Participation Rates

The trends in work participation rates are analysed and discussed in three sub-groups : (a) deals with the trends in total work participation rates (TWPR); (b) examines the trends in male work participation rates (MWPR); and (c) is devoted to assess the trends of female work participation rates (FWPR).

(a) Trends in Total Work Participation Rates (TWPR)

The total work participation rate as defined in the previous chapter has registered a marginal decline from 30.9 per cent in 1971 to 29.22 per cent in 1981, and a rising trend of 29.73 per cent during 1991 at state level which is evident from the Table 5.6.

A similar trend is noticed during this period in all the regions of the state. It is further observed that there exists a wide range of variations in work participation rates at the inter-regional level which was highest (41.93 per cent) in the Hill and the lowest (28.70 per cent) in Western regions in 1971, whereas the corresponding achievements varied from the highest (36.19 per cent) in the Hill and the lowest (28.17 per cent) in the Western regions during 1981. During 1981-91 a similar trend was noticed.

Table 5.6 : Trends in Work Participation Rates (TWPR)

Regions	Total Work Participation Rates (TWPR)		
	1971	1981	1991
Western	28.70	28.17	28.35
Central	31.50	30.20	30.59
Eastern	31.42	28.80	29.52
Hill	41.93	36.19	36.36
Bundelkhand	31.53	30.46	32.64
U.P.	30.90	29.22	29.73
C.V.	13.89	9.25	8.92

Source : Census of India

A comparison of various inter-regional developmental variables like Human Development Index (HDI), Composite Index of Infra-Structural Development (CIID) and Urban Development (UD) with work participation rate leads to a significant finding that there appears to be no direct relationship between the level of development and the work participation rates on uniform basis. For example, although the Western region registered a continuous growth in HDI, CIID and level of UD yet its total work participation rate was comparatively lower than the Eastern egion which had a very poor HDI and

level of urbanisation as compared to the western region. Contrastingly in the case of the Hill region, it may be observed that the level of development has made a direct and positive impact on work participation rate. In this region the growth of various developmental variables has resulted in the highest work participation rate at the regional level. Even the Central and the Bundelkhand region which have recorded a decline in HDI over the successive Census periods and have also lagged behind in the achievements of urbanisation and infra-structural Development, have registered a higher proportion of work participation rate. Moreover, inter-regional variations in respect of the total work participation rates during the period under reference appear to record a tendency of convergence as witnessed by the continuous decline in the coefficient of variation from 13.89 per cent in 1971 to 9.25 per cent in 1981 and 8.92 per cent in 1991.

(b) Trends in Male Participation (MPR)

Unlike the total work participation rate (TWPR) the male participation rates (MPR) have exhibited a continuous fall at state level during all the Census periods from 52.24 per cent in 1971 to 50.31 per cent in 1981 and 49.31 per cent in 1991 as would be evident from the Table 5.7. This situation indicates that despite the tall claims made by the planners and economists, the development programmes have made no

positive impact in generation of new employment opportunities. Even the existing rate of employment is shrinking due to disproportionate growth between population and workforce or employment opportunities.

Table 5.7 : Trends in Male Participation Rates (MPR)

Regions	Total Male Participation Rates (MPR)		
	1971	1981	1991
Western	51.42	50.53	50.05
Central	54.57	52.92	51.86
Eastern	51.95	49.12	47.54
Hill	52.30	47.69	46.61
Bundelkhand	51.83	50.39	50.34
U.P.	52.24	50.31	49.31
C.V.	7.24	3.45	3.91

Source : Census of India

From a scrutiny of the above table it appears that the trend of decline in male participaton rate is not centered at the state level only but at the regional level also we notice that during all the Census periods, this situation has emerged in all the economic regions resulting into a serious

problem for planners to identify new areas for employment opportunities. Further we also notice that there exists a wide variation in male participation at regional level ranging from the highest (51.86 per cent) in the Central region to the lowest (46.61 per cent) in the Hill region. In spite of this, the regions seem to have shown a converging tendecy in regard to male participation rates during different Census periods as supported by the coefficients of variation from 7.24 per cent in 1971 to 3.91 per cent in 1991.

(c) **Trends in Female Participation Rates (FPR)**

The female work participation rates have exhibited a fluctuating trend during the Census periods both at state and regional level. The FPR declined marginally from 6.71 per cent in 1971 to 5.39 per cent in 1981 and improved considerably at 7.45 per cent in next Census period of 1991 at state level. This is also supported by the fact that almost all regions except the Western, have registered a similar trend in female participation during the period of 1971-91. The Western region which exceptionally did not correspond to the established trend, demonstrated a marginal growth in female participation in 1981 at 1.37 per cent as compared to 1.36 per cent in 1971. It exhibited considerable improvement in 1991 when it registered a female participation rate of 2.53 per cent.

Table 5.8 : Trends in Female Participation Rates (FPR)

Regions	Total Female Participation Rates (FPR)		
	1971	1981	1991
Western	1.36	1.37	2.53
Central	4.35	3.74	5.71
Eastern	7.45	7.26	10.03
Hill	31.21	24.21	25.62
Bundelkhand	13.73	7.42	11.72
U.P.	6.71	5.39	7.45
C.V.	91.38	91.27	71.36

Source : Census of India

Based on the foregoing discussions, it may be concluded that feminisation in the process of participation rates has gained momentum both at the state and the regional levels during the reference period. Moreover, it is clear from a comparison between developmental variables and work participation rates that like the Western and the Central regions which are economically well developed have a lower women participation rate as against the regions which are economically or otherwise less developed. The latter have a higher women participation rate excepting the Hill region.

However, in spite of the existing inter-regional variations in female participation rates it is encouraging to find that these variations over the period have demonstrated a tendency of convergence or depolarisation. This shows that the policies and programmes, which were implemented during the two decades have proved to be fruitful to some extent in generating additional female employment in almost all the regions of the state. However, decline in male participation rate also puts a doubt about the generation of new and additional employment opportunities for females. It may be that reduction in male participation has led to increase in female participation. To arrive at a definite concluion an independent study is recommended.

Finally, a comparative study of participation rates between males and females reveals that even at regional level in some regions the male participation rate is 10 to 20 times more than female participation. This may point towards some sort of a gender bias though the sex-ratio on an average during all the Census periods has been 879 at the state level and between 829 to 967 at regional level. The sex-ratio was highest (955) in the Hill region and the lowest (841) in the Western region in the year 1991 against a state average of 879. Perhaps to dispel such a doubt from the minds of the fairer sex a quota system for women employment has been brought under enforcement by the Government during the recent years.

III. Determination of Inter-Relationship Between the Female Participation Rate (FPR) and Development Through Econometric Analysis

In order to find a causal relationship between the Female Participation Rate (FPR) and different variables of development at regional level of U.P. state, the same variables of analysis have been used for study under this chapter, which were applied while carrying out statistical analysis at inter-state level in Chapter III.

To assess and confirm the inter-relationship between women participation rate and level of development at regional level following five equations have been testified :

(1) $Y = a.X^{B}$

(2) $X = a.Y^{B}$

(3) $Y = a.X_1^{x}.X_2^{B}$

(4) $Y = a.X_2^{x}.X_3^{x}.X_4^{x}$

(5) $X_2 = a.Y.X_3.X_4$

here

Y = HDI (Human Development Index)

X = TWPR (Total Work Participation Rates)

X_1 = MPR (Male Participation Rate)

X_2 = FPR (Female Participation Rate)

X_3 = CIID (Composite Index of Infra-structural Development)

X_4 = UD (Urban Development or Urbanisation Level)

In equation Nos. 1 and 4 Y is a dependent variable while X, X_1, X_2, X_3 and X_4 are independent variables. Similarly in equation No. 2, X is a dependent variable Y is independent variable and in last equation (equation No.5) X is dependent variable and others are independent variables.

To analyse the impact of each of the selected independent variables on a dependent variable, an alternative regression model has been used to establish a causal relationship between dependent variable are independent variables as done in Chapter III.

Regression Model I
Alternative Model One

To assess and analyse the relationship between the level of Human Development (Y) and Total Work Participation Rate (X), all the five economic regions of U.P. have been considered as units of observation of analysis and the following regression model is applied to the data of the selected variables at the selected Census periods, i.e. 1971, 1981 and 1991.

$Y = (f)\ a.\ X^X$ .... Equation No.1 for Y on X

$X = (f)\ a.\ Y^B$ .... Equation No.2 for X on Y

The most important finding based on this exercise is that the coefficient of correlation between Total Work Participation Rate (TWPR) and Human Development Index (HDI) is found to be positive and it varies between moderate to high degree during all the three selected points of time. The results based on equation No.1, when Y (HDI) is taken on X (TWPR) are capitulated in following tabular form.

Table 5.9 : Results Based on Regression Model I Alternative Model - One [When HDI (Y) is taken on TWPR (X)]

Values	Periods		
	1971	1981	1991
Constant Term	(-) 0.9164	(-) 2.1026	(-) 2.1717
Regression Coefficients	0.041522	0.082910	0.081863
'T' Values	0.994803	1.199327	0.783544
R-Square	0.396675	0.528979	0.266125
'F' Values	0.742224	1.078789	0.460456

Correlation Matrix

Variables	Periods					
	1971		1981		1991	
	X	Y	X	Y	X	Y
X	1.00000		1.00000		1.00000	
Y	0.62982	1.00000	0.72731	1.00000	0.51587	1.00000

Source : Derived on the basis of data given in Appendix VI and VII

On the basis of the above results one can observe that : (i) the values of R^2 in the years 1971 and 1991 are quite low. However, in the year 1981 the value of R^2 is comparatively higher than the values in 1971 and in 1991. Even this higher value cannot be considered as significant. This suggests that the fit is not good; (ii) the values of regression coefficient of HDI (Y) in respect of TWPR (X) are found to be very poor in all the three selected periods of Census; (iii) the corresponding 'T' Values are also not very significant which indicate that none of the values of the regression coefficients under observation is significant.

To find out an appropriate model, efforts have been made to test the results based on equation No.2 where X (TWPR) is taken on Y (HDI). The results based on this equation are presented in following table.

Table 5.10 : Results Based on Regression Model I Alternative Model - Two [When TWPR (X) is taken on HDI (Y)]

Values	Periods		
	1971	1981	1991
Constant Term	28.6379	27.9057	30.2577
Regression Coefficients	9.553329	6.380145	3.250838
'T' Values	0.994803	1.199322	0.783546
R-Square	0.396675	0.528979	0.266125
'F' Values	0.742225	1.078779	0.460458

Source : Derived on the basis of data given in Appendix VI and VII

The figures tabulated above indicate that the values of R^2 are quite low suggesting that the values are insignificant and the fit is not good. The regression coefficients of X in respect of Y are positive in all the Census periods and was considerably very high in 1971 but it declined substantially during 1981 and 1991. However, the 'T' values corresponding to these coefficients are quite low pointing out to the fact that the values of the regression coefficients in the present equation are also not significant at all.

The same regression exercise was also carried out by taking into account all the data of the selected two variables (i.e. X and Y) available for all five economic regions at the selected three Census periods, 1971, 1981 and 1991. The results of this exercise at aggregate level are explained through the following table.

Table 5.11 : Results Based on Regression Model I Alternative Model One and Two Combined Together

Values	Aggregate	
	Y on X	X on Y
Constant Term	(-) 1.2600	29.0934
Regression Coefficients	0.053457	6.116975
'T' Values	1.654196*	1.654206*
R-Square	0.326995	0.326996
'F' Values	2.540911	2.540940

* Significant at 10 per cent level
Source : Derived on the basis of data given in Appendix VI and VII

It is evident from the above table that the values of R^2 at aggregate levels are also quite low indicating unsuitability of the present model. At aggregate level too, the values of regression coefficients are found to be very poor when Y is taken on X and considerably high when X is taken on Y but the corresponding 'T' values for both the regression coefficients indicate the fact that the regression coefficients are significant at 10 per cent level. Further, it appears that Y (HDI) is a remote cause of X (TWPR) though it may not be established due to corresponding insignificant 'T' values during all Census periods except at aggregate level.

To sharpen the aforesaid discussion, it was deemed essential to assess the impact of work participation rates (WPR) on Human Development Index (HDI) by sub-dividing the participation rate into two separate independent variables X_1 and X_2 representing Male and Female Participation rates respectively and then to establish a causal relationship between dependent variable (y) and independent variables (X_1 and X_2). For this purpose following equation was developed and applied.

$$Y = a. X^{x}_{1} . X^{B}_{2} \ldots$$ Equation No.3 (When Y is taken on X_1 and X_2)

On application of this equation, an important finding is noticed through correlation matrix that during all the Census

Table 5.12 : Result Based on Regression Model I, Alternative Model Three when MPR (x_1), FPR (x_2) are Independent Variable and HDI (y) is dependent variable.

Values	Variables	Periods		
		1971	1981	1991
Constant Term		2.6615	1.9635	(-)2.8243
Regression Coefficients	X_1	(-)0.046588	(-)0.034329	0.057596
	X_2	0.019997	0.025049	0.042624
'T' Values	X_1	(-)0.241204	(-)0.189753	0.310857
	X_2	0.986908	0.658534	0.640546
R-Square		0.538037	0.603544	0.318247
'F' Values		0.3680219	0.432198	0.189235

Correlation Matrix

Variables	x_1	x_2	y
	1971		
X_1	1.00000		
X_2	(-) 0.11847	1.00000	
Y	(-) 0.25178	0.71392	1.00000
	1981		
X_1	1.00000		
X_2	(-) 0.70802	1.00000	
Y	(-) 0.63378	0.76602	1.00000
	1991		
X_1	1.00000		
X_2	(-) 0.83040	1.00000	
Y	(-) 0.29705	0.51388	1.00000
	Aggregate		
X_1	1.00000		
X_2	(-) 0.37088	1.00000	
Y	(-) 0.22894	0.63836	1.00000

Source : Derived on the basis of data given in Appendix VI and VII

periods the Male Participation Rate (X_1) has exhibited a negative contribution to Human Development Index (HDI) while Female Participation Rate (X_2) has shown a positive and significant association with HDI throughout the reference period, i.e., 1971, 1981 and 1991. The results based on equation No.3 are listed in Table 5.12.

The results tabulated above speak themselves. The values of R^2 during 1971 and 1981 are quite satisfactory but this value has slid down in 1991. Even at aggregate level in value of R^2 is not significant at all. The values of regression coefficients of male participation rate during the Census periods 1971 and 1981 are negative and in 1991 it is insignificant. The corresponding 'T' values of regression coefficients are also insignificant. The regression coefficients of female participation rate are also insignificant during all Census periods including at aggregate level. However, the 'T' values of Female Participation Rate (FPR) of regression coefficient at aggregate level is significant at 10 per cent level. On the basis of this analysis it may be said that the results drawn from equation No.3 confirm the earlier inference that Human Development Index (Y) contributes to Participation Rate (X) but participation rate does not contribute to Development at all. The negative contribution of X_1 (MPR) and significant contribution of X_2 (FPR) to Y (HDI) support the earlier statement.

Regression Model II

Owing to unsuitability of the aforesaid Regression Model I it was deemed imperative to carry out application of an alternative to search out suitable model to be followed for analysis in our dissertation. In that context no doubt we have followed the same method of regression analysis which we had followed for application in Alternate Regression Model I. but the framework adopted here in the present context is in an expanded form. The Regression Model I which consisted of only two variables, is replaced by the alternative model involving use of four variables namely (i) HDI (Y); (ii) Female Participation Rate (X_2); (iii) Composite Index of Infrastructure Development (X_3); and (iv) Urbanisation (X_4). Besides this in application of this model too, economic region is taken as a unit of analysis and the time period considered remains the same.

The regression equations designed with the help of the selected variables for the purpose of present analysis are as follows :

$$X_2 = (f)\ a.\ Y^{x}2\ .\ X_3^{x}3\ .\ X_4^{x}4 \quad \text{... Equation No.1}$$

$$Y = (f)\ a.\ X_2^{x}2\ .\ X_3^{x}3\ .\ X_4^{x}4 \quad \text{... Equation No.2}$$

The results based on the application of the aforesaid equations are interpreted through subsequent paragraphs.

Correlation Matrix

The findings of Alternate Regression Model II are first analysed through the assessment of inter-relationship among the selected variables with the help of Correlation Matrix which is computed for each of the Census period under observation and also at aggregate level taken into consideration all the Census periods jointly. Following table exhibits the results based on correlation analysis.

Table 5.13 : Results Based on Regression Model II (When FPR (X_2) as Dependent Variable

Correlation Matrix

Variables	Y (HDI)	X_3 (CIID)	X_4 (UD)	X_2 (FPR)
		1971		
Y (HDI)	1.00000			
X_3 (CIID)	(-)0.58230	1.00000		
X_4 (UD)	0.46095	(-)0.42880	1.00000	
X_2 (FPR)	0.71392	(-)0.20775	(-)0.19103	1.00000
		1981		
Y (HDI)	1.00000			
X_3 (CIID)	0.27717	1.00000		
X_4 (UD)	0.31489	(-)0.15293	1.00000	
X_2 (FPR)	0.76602	0.02932	(-)0.11591	1.00000
		1991		
Y (HDI)	1.00000			
X_3 (CIID)	0.31011	1.00000		
X_4 (UD)	0.44621	(-)0.00814	1.00000	
X_2 (FPR)	0.51388	(-)0.18200	(-)0.26945	1.00000
		Aggregate		
Y (HDI)	1.00000			
X_3 (CIID)	0.00238	1.00000		
X_4 (UD)	0.32518	0.24246	1.00000	
X_2 (FPR)	0.63836	(-)0.06927	(-)0.16712	1.00000

Source : Derived on the basis of data given in Appendix VI and VII

A minute observation of the above correlation matrix helps us to draw at least four meaningful conclusions. First, there appears to be direct and positive relationship of Human Development Index (Y) with Female Participation Rate (X_2) and Urban Development (X_3) in all the Census periods and at aggregate level too. Second, the HDI (y) exhibits a negative relationship with CIID (X_3) in the Census year 1971 and exhibits low degree of positive correlation during the Census periods 1981 and 1991. Even at aggregate level the relationship between HDI (Y) and CIID (X_3) is insignificant. Third, the FPR (X_1) and UD (X_4) demonstrate a negative relationship between them in all the Census periods and at aggregate level. Four, the relationship between FPR (X_2) and CIID (X_3) also exhibits a negative direction in all the Census years except 1981 when thouth it was positive but insignificant. On the basis of these observations it may be included that both HDI (Y) and FPR (X_2) are in close association with each other so taking the same equation an inference can be drawn that HDI (Y) is contributing effectively to FPR (X_2) at regional level in Uttar Pradesh, but the contribution of other two developmental variables CIID (X_3) and Urban Development (X_4) was insignificant.

Regression Analysis with FPR (X_2) as Dependent Variable and the Rest Selected ones as Independent Variables

The results based on the application of this Regression Model are shown in the following table.

Table 5.14 : Results of the Regression Analysis based on Equation No.1 of Regression Model II

Values	Vari-ables	Periods			
		1971	1981	1991	Aggregate
Constant Term		18.1701	22.4668	38.3766	14.2071
Regression Coefficients	Y	38.085400	25.597110	19.891270	21.145040
	X_3	0.304876	-0.457640	-0.492542	0.033903
	X_4	-1.905471	-0.902226	-1.012662	-0.753181
'T' Values	Y	1.136917+	1.167228+	1.06050+	2.118869*
	X_3	0.171252	-0.390524	-0.593410	0.091165
	X_4	-0.722056	-0.575106	-0.807422	-1.131260
R-Square		0.869759	0.818454	0.788057	0.565502
'F' Values		0.256512	0.230899	0.216747	1.445457

Source : Derived on the basis of data given in Appendix VI and VII
* Significant at 5 per cent level.
+ Significant at 20 per cent level.

It transpires from the above table that there are three noteworthy points : First, the values of R^2 in all the Census periods and even at aggregate level are quite high, hence unlike previous model, this model does not look unsound or ineffective on this score and may be considered as a perfect model for drawing an inference that FPR (X_2) and other Developmental Variables (X_3, X_4 and Y) are in association with each other. Second, if we look at regression coefficient, we find that HDI (Y) significantly contributes to FPR (X_2) in all the Census periods but the regression

coefficients of other two developmental variables CIID (X_3) and Urban Development (X_4) exhibit either insignificant contribution or a negative contribution in all the Census periods and at aggregate level. Third, the corresponding 'T' Values of HDI (Y) are significant at 5 per cent at aggregate level and are also significant at 20 per cent during Census periods but 'T' values of other two independent variables CIID (X_3) and Urban Developmnt (X_4) are either insignificant or negative. Thus, a conclusion may be drawn broadly that though FPR (X_2) is directly associated with HDI (Y) and the change in level of Human Development leads to change in FPR too, but as the values of regression coefficients of two other developmental variables CIID (X_3) and Urban Development (X_4) are exhibiting a negative or insignificant contribution towards the dependent variable FPR (X_2) and their corresponding 'T' values are also insignificant hence it may be deduced that development does not lead to FPR.

Regression Analysis with HDI (Y) as Dependent Variable and the rest Selected Ones as Independent Variables

Contrary to the above, attempts were also made to assess and analyse the contributions of FPR (X_2), CIID (X_3) and urban development (X_4) to HDI (Y) through application of the same model using equation No.2. The regression results thus found are shown in the following table.

Table 5.15 : Results Based on Regression Model II (When HDI (Y) as Dependent Variable

Correlation Matrix

Variables	x_2(FPR)	x_3 (CIID)	x_4 (UD)	y (HDI)
		1971		
X_2 (FPR)	1.00000			
X_3 (CIID)	(-)0.20775	1.00000		
X_4 (UD)	(-)0.19103	(-)0.42880	1.00000	
Y (HDI)	0.71392	(-)0.58230	0.46095	1.00000
		1981		
X_2 (FPR)	1.00000			
X_3 (CIID)	0.02932	1.00000		
X_4 (UD)	(-)0.11591	(-)0.15293	1.00000	
Y (HDI)	0.76602	0.27717	0.31489	1.00000
		1991		
X_2 (FPR)	1.00000			
X_3 (CIID)	(-)0.18200	1.00000		
X_4 (UD)	(-)0.26945	(-)0.00814	1.00000	
Y (HDI)	0.51388	0.31011	0.44621	1.00000
		Aggregate		
X_2 (FPR)	1.00000			
X_3 (CIID)	(-)0.06927	1.00000		
X_4 (UD)	(-)0.16712	0.24246	1.00000	
Y (HDI)	0.63836	0.00238	0.32518	1.00000

Contd.....

Table 5.15 (contd....)

Results

Values	Variables	Periods			
		1971	1981	1991	Aggregate
Constant Term		-0.3348	-0.7923	-1.6319	-0.3278
Regression Coefficients	X_2	0.022284	0.031877	0.038348	0.026134
	X_3	-0.010652	0.017999	0.022568	-0.002275
	X_4	0.045890	0.033714	0.046311	0.029671
'T' Values	X_2	0.970849	1.062372	0.958426	2.052933*
	X_3	-0.227542	0.422338	0.586539	-0.169142
	X_4	0.607932	0.594418	0.828903	1.287465+
R-Square		0.908264	0.854151	0.833366	0.602698
'F' Values		0.277315	0.248477	0.238111	1.581545

Source : Derived on the basis of data given in Appendix VI and VII

* Significant at 5 per cent level.
+ Significant at 10 per cent level

It would be evident from the above table that the Values of R^2 noticed through application of the regression model II demonstrate a rosy; its value was 0.908264 in 1971 declined to 0.854151 in 1981 and 0.833366 in 1991. At aggregate level to it exhibits a value of 0.602698. On the basis of these R^2 values we may conclude that there is a close association

between HDI (Y) and other Development Indicators CIID (X_3) and UD (X_4) and FPR (X_2). Besides this through correlation matrix we observe that HDI (Y) has close association with FPR (X_2), Urban Development (X_4) and CIID (X_3). Though correlation between HDI and CIID was negative in 1971 and reflected a very insignificant association at aggregate level. These facts provide us definite clues to deduce a conclusion that fit is good and application of this kind of model involving use of HDI (Y) as dependent variable and the FPR (X_2), CIID (X_3) and Urban Development (X_4) as independent variables theoretically sound and empirically valid. Further a close examination of the regression coefficients and their corresponding 'T' values suggests that Urban Development (X_4), Female Participation Rates (X_2) and Infrastructural Development (X_3) have made significant contribution to Human Development (Y) during whole of the reference periods. The 'T' values of Female Participation Rate and Urban Development at aggregate level are significant at 5 per cent and at 10 per cent respectively.

IV. Conclusions

From the analysis of the aforesaid regression equations and interpretations of correlation matrix we may conclude that our earlier hypothesis that Female participation leads to development has come out to be true and it may also be concluded that both development and participation are

interdependent phenomenon. However there exists a slight tilt in favouring of development which may be expressed as 'participation is more conducive to development than the latter to the former'.

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CHAPTER VI

CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

The role of women in development has been an area of probe for social scientists at global level since years. Several studies were made both at macro and micro levels on this issue. The detailed studies revealed that with the progress of the development female participation rate declined till the former attained its saturation level. Thereafter further growth and stability registered a rising trend onwards in female participation rate.

On the other hand, brief studies on this issue pointed out that levels of development, educational status, castes and social consciousness of an area had a direct bearing on female participation rate and there existed direct relationship between the level of backwardness and female participation rates. In addition, these studies brought to light the existence of an inverse relationship between the literacy rates and female participation rates, particularly in the rural areas, lower caste-dominated pockets generally had a higher female participation rate, and opposite trends were noticed on reversal of the situation. Further, regions

suffering from higher incidence of poverty and illiteracy registered a higher female participation rate and vice versa.

The studies both at macro and micro levels were generally based on the general hypothesis that female participation led to development. Obviously, an effort was made to fill the gap on this aspect by carrying out a research dependent on the alternate hypothesis that female participation contributed to development; more participation leads to higher level of development.

While assessing the share of women in development at National level a Human Development Index (HDI) was formulated and that was compared with the other variable Total Work Participation Rate (TWPR) to establish a relationship (or association) between the two. A regression analysis was also performed but it was observed that no direct association existed during the three Census periods between Total Work Participation Rates (TWPR) and Human Development Index (HDI) in the fifteen major states which were selected for study at the national level. Simultaneously, no evidence was available to support the conventional hypothesis that development led to total work participation through the same econometric model. Results appeared either in the negative or insignificant amplitude. Neither the correlation nor the regression coefficients and their corresponding 'T' Value exhibited any direct relationship between the two variables, Total Work Participation Rate (X) and Human Development Index

(Y). When no concrete results were achieved through regression model I, another regression model was applied by raising the number of independent variables from one to three to establish a proper association and causal relationship between HDI (Y) and Female Participation Rate (X_2). In this regression model when Female Participation Rate (FPR) was taken as dependent variable and other three, Human Development Index (HDI), Composite Index of Infrastructure Development (CIID) and Urban Development (UD) were taken as independent variables, it was found that an extremely poor correlation existed between FPR and HDI throughout the reference period, and even at aggregate level. The correlation between FPR and CIID was negative, there was a positive and low degree correlation between FPR and Urban Development during the whole period of observation. But as the R^2, regression coefficients and the corresponding 'T' Values exhibited either negative values or very low or insignificant values, it was noticed that conventional hypothesis of 'Development led Participation' was a mere fallacy and held no support from the study made in respect of the fifteen major states at the national level.

Another regression model was used to test the alternative hypothesis that 'Participation led to Development' in which HDI (Y) was taken as dependent variable and CIID (X_3), UD (X_4) and FPR (X_2) were taken as independent variables. The model used for testing this hypothesis provided values reflecting a perfect correlation among Human

Development Index, Composite Index of Infrastructural Development, Urban Development and Female Participation Rate throughout the entire reference periods. The values of R^2 also demonstrated a significant association among HDI, CIID, UD and FPR. The corresponding 'T' values of regression coefficients of CIID and UD were found significant at 5 per cent and 10 per cent level respectively. Hence, on the basis of statistical analysis of the fifteen major states it may be concluded that the hypothesis selected for this study that 'Participation leads to Development' holds the key. During the reference periods, i.e. 1971, 1981 and 1991 we find that participation rates and other developmental factors have contributed a lot to Human Development Index.

While assessing the extent of female representation to total workers we find that involvement of women workers in various fields of economic activity has increased at both the national and the state levels. It may, therefore, be concluded that the process of feminisation of workforce has definitely shown improvement over the period. We have also noticed inter-state variations in the ratio of female workers to total workers during all the Census periods under study. It is further observed that the same inter-state variations existed in the proportion of female workers even at the rural level, confirming our earlier finding that a converging tendency was manifest in the magnitude of female workers, residing in rural parts. The inter-state variations in urban areas also reflected a similar trend.

A comparison of the proportion of urban female workers to those of rural female workers indicates that the proportions in both the urban and rural areas have registered a rising trend at the national level during the reference period. However, these proportions in the case of the urban areas were much lower than the figures about the rural areas at all the selected points of time. Differentials in increase of poverty and levels of education or literacy percentage are identified as reasons attributable to this ironical situation. In rural areas, owing to poor economic conditions, females are forced to participate in economic activities for sustenance through their engagements in both farming and non-farming sectors as wage earners. Contrastingly in case of urban areas, the situation seems to be different. It may be due to less intensity of economic pressure at the family level.

Though we find a positive growth in employment of total, male and female workers throughout the Census periods, yet there remains a wide range of inter-state variations not only in employment growth of total workers but also in regard to male as well as female workers. But this inter-state variation has shown a substantial decline during successive Censuses of 1981 and 1991 as compared to 1971.

We have also observed another striking point, that growth rate of female employment in urban areas was better than the corresponding rate in rural areas during both the

sub-periods 1971-81 and 1981-91, not only at national level but also in many of the major states. It was also noticed that the inter-state variations have declined gradually during the different Census periods, may be due to effective employment generation programmes. Though there exists a wide range of variation in work participation rates among the states, yet it is rather surprising that no evidence was found about a direct and positive relationship between the level of development and work participation rates. Some developed states demonstrated a fall in male participation rates. This may be due to their attainment of a higher level of development through application of modern technology and adoption of mechanisation and automation in industrial and agricultural sectors leaving less scope for additional employment.

The female participation rates have increased in almost all the states except Himachal Pradesh and Kerala. This confirms our premise that feminisation in the process of work participation rates have gained momentum both at the national and state levels during the reference period. Though we had observed inter-state variations in female participation rates also, yet our findings reveal that the variations have recorded a tendency of convergence or depolarisation. This shows that the policies and programmes introduced for the generation of additional female employment have proved to be effective.

A comparative study of participation rates between males and females reveals that male participation rates are three to four times greater than that of female participation rates not only at the national level but also at the sub-national level. This reflects the traditional pattern of labour division in the society, exhibiting a sort of gender bias in the estimate of modern thinkers.

A micro-study of inter-regional behaviour of employment patterns at Uttar Pradesh state level also confirms our previous finding that even at regional level the proportion of total female workers has shown considerable improvement, and the involvement of women in various kinds of economic activity has registered a remarkable increase during the Census periods 1971 and 1991. However, we observed a sharp decline in participation rates during the Census period 1981 in female workers both at aggregate level and in rural areas. But female employment registered a uniform growth in all the Census periods in urban areas. The decline in participation rates may be attributed to some specific reason like a change in the definition of 'worker' in 1981, erosion of employment opportunities due to mechanisation of agriculture, etc. during the period 1971-81.

We also noticed inter-regional variations in the proportions of female employment, male employment and total employment. These inter-regional variations were also observed in participation rates. These variations may be the

result of difference in the geo physical and climatic conditions, life-stylee of the people cultural patterns of the society in the various economic regions.

A comparison of various inter-regional developmental variables like Human Development Index (HDI), Composite Index of Infrastructure Development (CIID) and Urban Development (UD) with Total Work Participation Rate (TWPR) does not exhibit any direct relationship between the level of development and the work participation rates. A highly developed region like the Western registered a very poor female participation rate while a very low developed region like the Eastern demonstrated a high female participation rate. This indicates that the regions which are economically well developed have a lower female participation rate while those who have not achieved an optimum development level or those which are less developed have a higher female participation rate. The Hill region is, however, an exception. There the women are bound to engage themselves in work due to large scale migration of males from the territory.

At inter-regional level of Uttar Pradesh too, we come across similar findings through the application of same regression models which we have drawn earlier while applying these models at national and inter-state levels. The findings amply support our hypothesis that "Female Participation actively contributes to Development".

Recommendations

In the light of what we have stated in the foregoing paragraphs we recommend :

1. The sphere of economic activity may be so expanded as to provide maximum opportunity to women to enter the task force both in the rural and urban areas.

2. Interse competition between the male and the female workers should be avoided as far as possible, to ensure that one does not thrive at the cost of the other. Both should receive employment.

3. The recent emphasis in the economic policy on capital intensive undertakings should be reviewed and made more employment generating.

4. It cannot be denied that a parliamentary form of government gives rise to regional imbalances. However, with the choice of proper leadership the country should be administered in a manner so as to bridge the gaps in the levels of development of the various regions to the maximum.

5. While urbanisation cannot be stopped in an age of industrialization, due attention should be paid to the development of rural areas with a view to create employment opportunities locally.

This study has opened avenues for further research. For example, a probe into that sector of economic activity may be rewarding wherein the male and female members of a household or family participate as a composite unit, the roles played by the women have not been delineated, and therefore, remain unidentifiable. Such a piece of research work may bring to light the actual quantum of female participation in the trade or business sphere and go to show a much enhanced value of women's contribution to the process of development.

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APPENDICES

Appendix I : Values of Human Development Index (HDI) and Total Work Participation Rate (TWPR)

States	Census Periods					
	1971		1981		1991	
	HDI	TWPR	HDI	TWPR	HDI	TWPR
Andhra Pradesh	0.2204	41.39	0.2853	42.26	0.2868	42.77
Bihar	0.0403	31.03	0.1072	29.68	0.0383	29.66
Gujarat	0.6638	31.45	0.4693	32.23	0.4149	34.12
Haryana	0.5389	26.44	0.5589	28.35	0.5762	28.66
Himachal Pradesh	0.4570	36.95	0.5005	34.37	0.4785	34.41
Karnataka	0.3092	34.74	0.4382	36.76	0.3944	38.45
Kerala	0.6232	29.12	0.7831	26.68	0.4237	28.53
Madhya Pradesh	0.3990	36.72	0.1407	38.41	0.1184	37.67
Maharashtra	0.6856	36.48	0.6438	38.71	0.6226	39.29
Orissa	0.1873	31.22	0.2050	32.75	0.1171	32.78
Punjab	0.5207	28.87	0.7240	29.35	0.6988	30.07
Rajasthan	0.3332	31.24	0.1597	30.48	0.1311	31.62
Tamil Nadu	0.4676	35.78	0.4242	39.31	0.4523	40.81
Uttar Pradesh	0.1134	30.94	0.0975	29.23	0.0786	29.73
West Bengal	0.3706	27.91	0.3876	28.26	0.4028	30.23

Source : Census of India, Population Tables and Values given in Appendix V.

Appendix II : Values of Female Participation Rate (FPR), Composite Ir of Infrastructure Develop-ment (CIID) and Urban Developn (UD).

States	Census Periods								
	1971			1981			1991		
	FPR X_1	CIID X_2	UD X_3	FPR X_1	CIID X_2	UD X_3	FPR X_1	CIID X_2	UD X_3
Andhra Pradesh	24.16	28.77	19.30	27.01	53.62	23.30	30.05	97.12	26
Bihar	8.88	52.68	10.00	9.06	43.19	12.50	9.97	55.65	13
Gujarat	10.26	44.42	28.10	11.03	74.91	31.10	13.73	129.37	34
Haryana	2.41	40.91	17.70	4.69	83.22	21.90	6.01	138.50	24
Himachal Pradesh	20.79	21.72	7.00	18.72	39.22	7.60	19.36	78.53	8
Karnataka	14.20	55.05	24.30	18.95	71.23	28.90	22.73	113.83	30
Kerala	13.49	209.34	16.20	12.76	192.80	18.70	12.81	241.92	26
Madhya Pradesh	18.65	21.18	16.30	22.34	37.43	19.90	22.82	64.78	23
Maharashtra	19.70	57.01	31.20	23.98	92.05	35.00	26.47	139.72	38
Orissa	6.81	40.60	8.40	10.70	70.55	11.80	12.10	127.04	13
Punjab	1.18	75.28	23.70	2.27	132.70	27.70	2.79	218.45	29
Rajasthan	8.34	18.13	17.60	9.32	34.96	21.00	13.04	70.92	22
Tamil Nadu	15.09	74.96	30.30	22.36	113.04	33.00	25.13	156.15	34
Uttar Pradesh	6.71	35.57	14.00	5.40	50.02	17.90	7.45	75.38	19
West Bengal	4.43	63.48	24.70	5.81	65.25	26.50	7.96	78.32	27

Source : Derived on the basis of data given in Census Reports and Values incorporated in Appendix IV.

Appendix IV : Method of Computation of Composite Index of Infrastructure Development

The Composite Index of Infrastructure Development (CIID) has been designed by taking into account the Values of three important variables of infrastructure development, namely, (i) Per capita Consumption of Electricity (in Kwh); (ii) Road length (per '000 sq. kms.); (iii) Number of Offices of Scheduled Commercial Banks (per lakh of Population).

For Computation of a Composite Inded following weights have been assigned to each variable of infrastructure development:

Variable	Weight
(a) Per capita Consumption of Electricity	20
(b) Road Length	5
(c) Number of Offices of Scheduled Commercial Banks	2
Total Value of Weight	27

On the basis of above weights, the weighed Inded Value of each variable has been calculated by applying following formula :

$$\text{Weighted Index Value} = \frac{\text{Value of the Developmental Variable (V)} \times \text{Weight Assigned to Variable (W)}}{\text{Total Value of Weight (TW)}}$$

After obtaining the weighted Index value of each variable, a pooled weighted value is computed for all variables and thereafter an average value has been calculated by applying the following formula

$$\text{Average Value of Composite Index} = \frac{\text{Pooled Weighted Values of All Variables}}{\text{No. of Variables}}$$

Appendix IV : Values of Variables of Infrastructure Development

States	Census Periods								
	1971			1981			1991		
	Per capita electricity consumption (Kwh)	Road Length (per '000 Sq.Km)	No.of Offices of Scheduled Commercial Banks	Per capita electricity consumption (Kwh)	Road Length (per '000 Sq.Km)	No.of Offices of Scheduled Commercial Banks	Per capita electricity consumption (Kwh)	Road Length (per '000 Sq.Km)	No.of Offices of Scheduled Commercial Banks
Andhra Pradesh	50.4	264	1.4	95.0	487	4.7	267.7	500	7.0
Bihar	45.9	670	0.5	53.7	484	2.7	102.9	488	5.5
Gujarat	124.4	221	3.0	222.0	323	6.6	427.7	382	8.2
Haryana	88.8	307	1.8	197.8	555	5.8	413.5	587	7.8
Himachal Pradesh	34.1	215	1.3	65.1	372	7.7	215.9	403	14.4
Karnataka	101.5	485	2.7	139.1	595	7.1	295.4	659	9.6
Kerala	71.4	3106	2.9	108.3	2688	8.4	185.9	3173	9.8
Madhya Pradesh	45.2	162	0.9	87.5	255	3.6	202.0	239	6.6
Maharashtra	151.7	316	2.3	223.6	595	5.3	397.0	673	7.1
Orissa	72.9	366	0.5	94.0	766	3.1	200.5	1254	6.6
Punjab	156.2	594	2.6	297.7	955	9.2	631.3	1010	10.6
Rajasthan	36.8	146	1.5	85.7	222	4.3	208.8	311	7.0
Tamil Nadu	124.9	714	2.7	177.6	1119	5.8	310.8	1284	7.8
Uttar Pradesh	48.5	382	0.9	70.8	526	3.4	148.5	625	6.1
West Bengal	107.3	599	1.2	104.0	640	3.7	154.4	649	6.2

Source : Basic Statistics relating to the Indian Economy Vol.II States, CMIE Bombay, 1992 and 1994.

Appendix V : Values of Literacy Rate, Life Expectancy and Per Capita State Domestic Product

States	1971			1981			1991		
	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)
Andhra Pradesh	24.57	44.4	585	29.94	55.7	1380	45.11	59.1	4728
Bihar	19.94	41.0	402	26.01	52.3	878	38.54	54.9	2655
Gujarat	35.79	53.7	829	43.75	54.5	1951	60.91	57.7	5687
Haryana	26.89	50.6	877	35.84	58.6	2370	55.33	62.2	7502
Himachal Pradesh	31.96	50.2	651	41.94	59.8	1704	63.54	62.6	4790
Karnataka	60.42	44.6	594	70.42	58.5	1511	55.98	61.1	4696
Kerala	22.14	48.8	484	27.82	66.5	1183	90.59	69.5	4207
Madhya Pradesh	39.18	54.4	783	47.37	50.2	2427	43.45	53.0	4149
Maharashtra	31.52	54.4	641	38.41	58.1	1623	63.05	62.6	7316
Orissa	26.18	44.7	478	34.12	50.8	1231	48.55	54.4	3077
Punjab	33.67	43.8	1070	40.74	62.8	2690	57.14	65.2	8373
Rajasthan	19.07	49.4	651	24.05	52.5	1222	38.81	55.2	4113
Tamil Nadu	39.46	49.6	581	45.78	55.9	1498	63.72	60.5	5047
Uttar Pradesh	21.77	43.0	486	27.38	46.8	1278	41.71	53.4	3516
West Bengal	33.20	44.9	722	40.88	55.1	1564	57.72	60.8	4753

Source : 1. Census of India Reports.
2. SRS Life Tables, Registrar General, New Delhi.
3. Inter-state Comparative Statistics, E & S Dvision, State Planning Institute, Lucknow, 1993.

Appendix VI : Values of Human Development Index (HDI) and Total Work Participation Rate (TWPR)

Economic Regions	Census Periods					
	1971		1981		1991	
	HDI	TWPR	HDI	TWPR	HDI	TWPR
Western	0.53	28.70	0.62	28.17	0.64	28.35
Central	0.25	31.50	0.17	30.20	0.16	30.59
Eastern	0.00	31.42	0.14	28.80	0.07	29.52
Hill	0.90	41.93	1.00	36.19	1.00	36.36
Bundelkhand	0.58	31.53	0.31	30.46	0.21	32.64
Uttar Pradesh	0.1134	30.94	0.0975	29.23	0.0786	29.73

Values of Male Participation Rate (MPR) and Female Participation Rate (FPR)

Economic Regions	1971		1981		1991	
	MPR	FPR	MPR	FPR	MPR	FPR
Western	51.42	1.36	50.53	1.37	50.05	2.53
Central	54.57	4.35	52.92	3.74	51.86	5.71
Eastern	51.95	7.45	49.12	7.26	47.54	10.03
Hill	52.30	31.21	47.69	24.21	46.61	25.62
Bundelkhand	51.83	13.73	50.39	7.42	50.34	11.72
Uttar Pradesh	52.24	6.71	50.31	5.39	49.31	7.45

Appendix VII : Values of Composite Index of Infrastructure (CIID) and Urban Development (UD)

Economic Regions	1971		1981		1991	
	CIID	UD	CIID	UD	CIID	UD
Western	13.24	18.20	23.64	23.71	33.39	26.30
Central	15.74	17.50	19.94	21.16	29.94	23.90
Eastern	20.95	8.30	22.71	10.69	31.46	11.60
Hill	13.67	14.40	22.05	18.30	30.46	21.50
Bundelkhand	3.53	14.70	7.84	19.97	13.77	21.30
Uttar Pradesh	35.57	14.00	50.02	17.90	75.38	19.90

Value of Variables of CIID (i.e. Per Capita Electricity Consumption, Road Length and No. of Offices of Scheduled Commercial Banks)

Economic Region	1971			1981			1991		
	Per capita electricity consumption	Road Length	No.of Offices of Scheduled Commercial Banks	Per capita electricity consumption	Road Length	No.of Offices of Scheduled Commercial Banks	Per capita electricity consumption	Road Length	No.of Offices of Scheduled Commercial Banks
Western	50.40	12.08	2.14	90.40	19.70	4.2	124.55	40.55	5.9
Central	61.20	9.48	1.96	75.34	20.10	4.2	112.74	31.57	6.4
Eastern	81.80	11.69	1.29	86.50	20.80	2.8	118.11	35.14	5.2
Hill	53.30	6.88	3.45	82.98	22.80	6.4	115.68	26.13	11.5
Bundelkhand	12.20	7.68	1.63	27.86	14.30	3.0	50.01	20.57	6.2

Value of Literacy, Life Expectancy and State Domestic Product at Current Prices

States	1971			1981			1991		
	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)	Literacy Rate	Expectation of Life at Birth	Per Capita SDP(at Current price)
Western	22.31	50.60	392	28.19	58.6	469	42.02	62.2	416
Central	22.86	43.00	325	27.72	46.8	352	42.61	53.4	324
Eastern	19.40	41.00	265	24.28	52.3	306	38.55	54.9	260
Hill	31.02	50.20	466	39.29	59.8	496	59.58	62.6	483
Bundelkhand	22.52	54.4	361	28.93	50.2	391	42.32	53.0	347

Source : District-wise Developmental Indicators, State Planning Institute, Lucknow.